Markel answers FDA
on how to unshackle food improvements

Industry reappraises
radiation preservation – Part III

Spotlight on Material Handling

FOR THE MANAGEMENT TEAM
OCTOBER, 1957

food processing®

A Putman Publication / EXECUTIVE MAGAZINES FOR INDUSTRY

F. A. DAVIDSON, President, Refined Syrups & Sugars, Inc.

OBJECTIVE: Quality
RESULTS: New forms of Sugar
for industrial use . . . 29

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that's interesting

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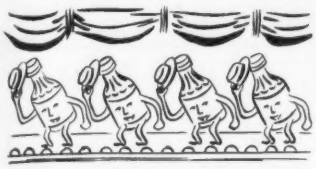

in years past. It is, of course, just an additional stage name traditionally used by actors when doubling as two different characters. A decanter package, recently introduced by Brooks Foods, Inc., Collinsville, Ill., for barbecue sauce, expands on this idea by offering the sauce, in its new container, under four different brand names in nine different territories. The quartet is composed of: Brooks Barbecue Sauce, Boone County Barbecue Sauce, Smoke Flavored Barbecue Sauce, and Brooks Cook-Out Barbecue Sauce. The latter is designed primarily for Eastern markets.

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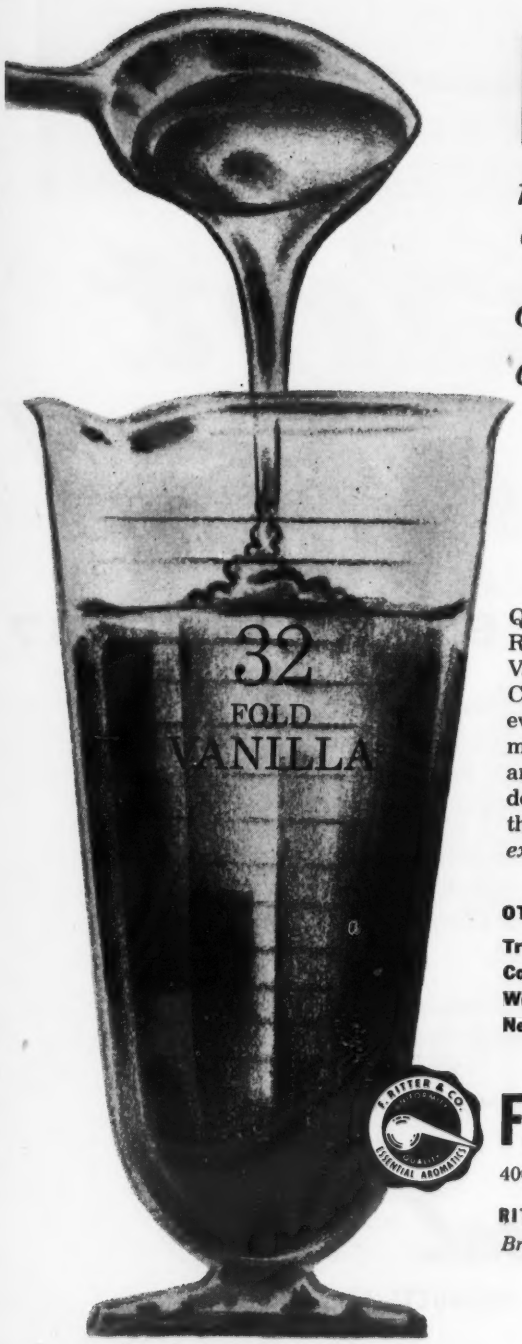

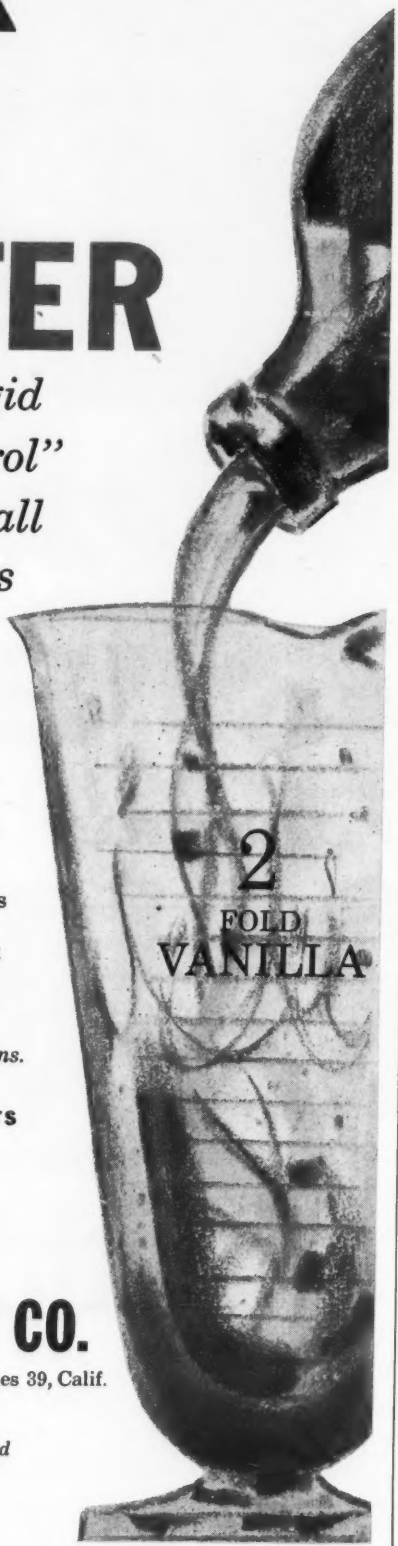

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VOL. 18 NO. 10

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Advertising Representatives and offices on page 134

TRI-CLOVER

"Lift Type" PLUG VALVES help guard product quality at Pepsi-Cola Bottling Co., Atlanta

Wherever it's bottled, the consistent high quality of Pepsi-Cola syrup is a prime factor in maintaining the uniform standards and taste of the final product. To help guard against contamination, and to assure high operating efficiency with low maintenance, Pepsi-Cola Bottling Co., Atlanta, Georgia, relies on Tri-Clover Division's "Lift Type" Plug Valves and fittings on syrup storage tanks, as shown above.

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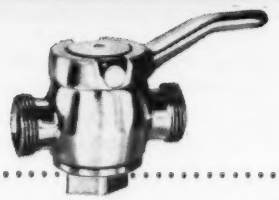

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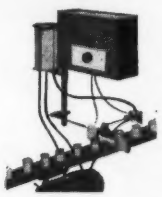

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over the editor's shoulder

Questions and Answers

Asking questions is our business — or at least a most important part of it. The questions we've been asking most recently have been to get facts for articles in FOOD PROCESSING's Material Handling section which is featured this month. "A good question and its short answer are worth hundreds of pages of reporting," according to Harry A. Toulmin, Jr., Chairman of the Board of Commonwealth Engineering Co., writing in the June issue of the organization's publication, "Competition."

Now, we believe we've asked some "good" questions and received some very interesting answers, including information on some developments just ready for announcement. We believe, too, that when you read these articles they will prompt questions of your own. The answers to these may help to further improve material handling operations that account for from 20% to 80% of today's production costs.

Joseph A. White

PRODUCT EDITOR

highlights

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food processing

October 1957
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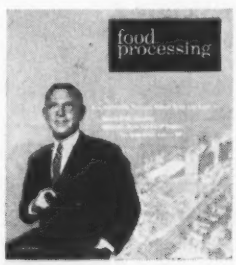
THIS MONTH'S COVER

shows an aerial view of the Refined Syrups & Sugars Plant of which F. A. Davidson is president. It is strategically located in Yonkers, N. Y., between river and railroad and modern highways. Hence, shipments are made via motorship, railroad, or truck. For story on new sugar products, see page 30.



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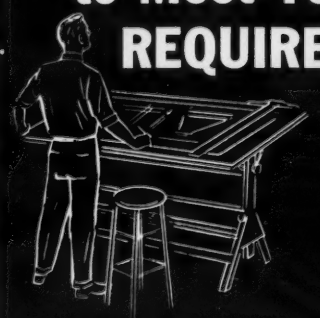

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- mixing and dispersion
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letters from readers

Comments from readers should be addressed to: The Editor, FOOD PROCESSING 111 E. Delaware Pl., Chicago 11, Illinois

CONFUSION ABOUT FOOD COLORS? . . . AMENDMENTS TO FDA ACT

New York, N.Y.—Following the publication of my article, "What's all this confusion about food colors?" (August issue, pg 36), copies of bill HR 8945 became available. This bill, introduced in the House of Representatives by Congressman T. B. Curtis of Missouri, would amend the Federal Food, Drug, and Cosmetic Act of 1938 as it relates to colors.

This bill would clarify the existing law so as to define the statutory word "harmless" in terms of conditions of use, and to give FDA specific authority to determine those conditions, including maximum concentrations, under which any coloring material, natural or synthetic, can be used safely in food, drugs, and cosmetics.

Under the bill's provisions, consumers would be assured of continued use of color on a safe, stable, and realistic basis, and research in this field would be stimulated.

ARTHUR T. SCHRAMM
Chairman
Certified Color Industry Committee

● Copies of this bill are available from Mr. Schramm at National Aniline Div., Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y. —EDITOR

MR. STOKELY WRITES HIS CONGRESSMEN . . . HAVE YOU?

Indianapolis, Ind.—My comment, published in your August issue (page 39), was sincere and to the point, as I see it.

I have known Mr. Larrick for something approaching 30 years. I know he is a conscientious, able administrator of the Food and Drug portion of our Government.

I believe in general he is inclined to agree with anything reasonable.

I do believe in this question of standards of identity; we have a different view, perhaps not correctly so, but my view is that we are in a progressing situation where you cannot be frozen to what used to be.

I do not mean by that in any way we should imperil the health of the nation. I do believe that people who invent new ideas and new processes should be allowed to proceed with them without undue preventives.

I am writing the following letter to Mr. Larrick, and to Senators Capehart and Jenner of Indiana, Senators Kefauver and Gore of Tennessee, also to Representatives Halleck and Brownson from Indiana.

W. B. STOKELY, JR.
Chairman of the Board
Stokely-Van Camp, Inc.

● On page 33 of this issue, Michael F. Markel, author of the Hale Amendment, furnishes "An Answer to FDA's Larrick on How to Amend the Standards Law and Unshackle Food Improvements".

Here is the letter Mr. Stokely sent to his Congressmen as mentioned in his last paragraph. —EDITOR

"I am sending you herewith copy of letter (Editor's note: statement published in August issue pg 39, together with four other industry leaders) *which I have written with regard to certain views in the administration of the Food & Drug Administration.*

"I believe they are self-explanatory, but if not shall be glad to explain them.

"I have made my point perfectly clear, that no one in the food industry, including ourselves, and first rather than last, wants to evade any part of the issue.

"We do want to be free to perhaps develop something new.

"This has to be done in the aircraft industry and any other industry and Food & Drugs should not freeze us into a certain position. I am perfectly willing and agreeable to having all possible tests made as to the effect upon health of anything that is added or subtracted from the total food situation, but the fact remains that progress, to be progress, cannot be legislated.

"I happen to know in our own particular company that we have made 2 very substan-

tial matters of progress recently, and if you went under the standard as proposed by my good friend, Mr. Larrick, they would not have been possible."

Sincerely yours,
W. B. STOKELY, JR.

FATS IN FOODS — SHORTENING VS. OIL

Chicago, Ill.—Discussion seems to get hotter and hotter, day by day, on the subject of harmfulness of fats in the human diet. FOOD PROCESSING has, as usual, done an exceptionally good job of keeping the readers informed regarding the outcome of current research and the opinion of the experts in the field. May I contribute a discordant note to your "Letters from Readers" column. There is a point in the articles that have been published that I feel has, through misemphasis, created a serious misimpression. Secondly, I have a suggestion to offer with regard to the sort of public relations approach that the food industries might take in this matter.

Regarding the articles that have appeared, certainly adequate reference has been made to the saturated fatty acid content of the various meat fats and to the saturated fatty acid content of lard as a cooking fat and shortening. Also, plenty of reference has been made to the lack of saturated fatty acids and presence of high levels of unsaturated fatty acids in vegetable oils.

Judging from comments of members of my own household, neighbors in my community, and friends, with whom I have discussed the "fats in foods" matter, I find that these people are almost universally of the impression that the term "vegetable oils" and the term "vegetable oil shortenings" are practically synonymous. Obviously, there is a drastic difference in the saturated fatty acid content and unsaturated fatty acid content of a crude vegetable oil (i.e., cotton seed oil or soy oil) and the "all hydrogenated" shortenings prepared from these same oils. Because this difference has not been specifically emphasized in the popular articles that have appeared, I fear the public is acquiring a serious misconception.

In fairness to the very competent authors of the FOOD PROCESSING articles, it should be emphasized that they have not made any misstatements. You have always selected men of very high integrity. Perhaps the fault lies in the lack of ready reference material on the fatty acid content of hydrogenated vegetable oil shortenings.

It is a fact, however, that an

(*Continued on next page*)

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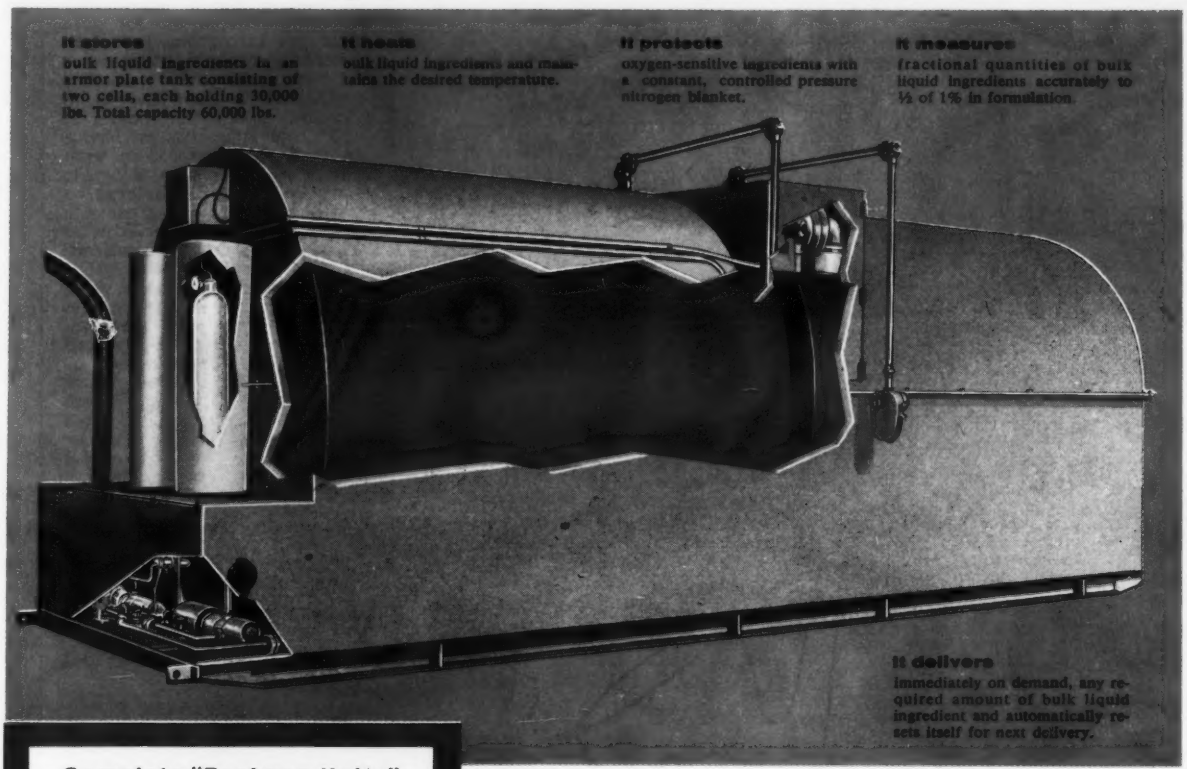
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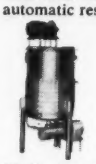

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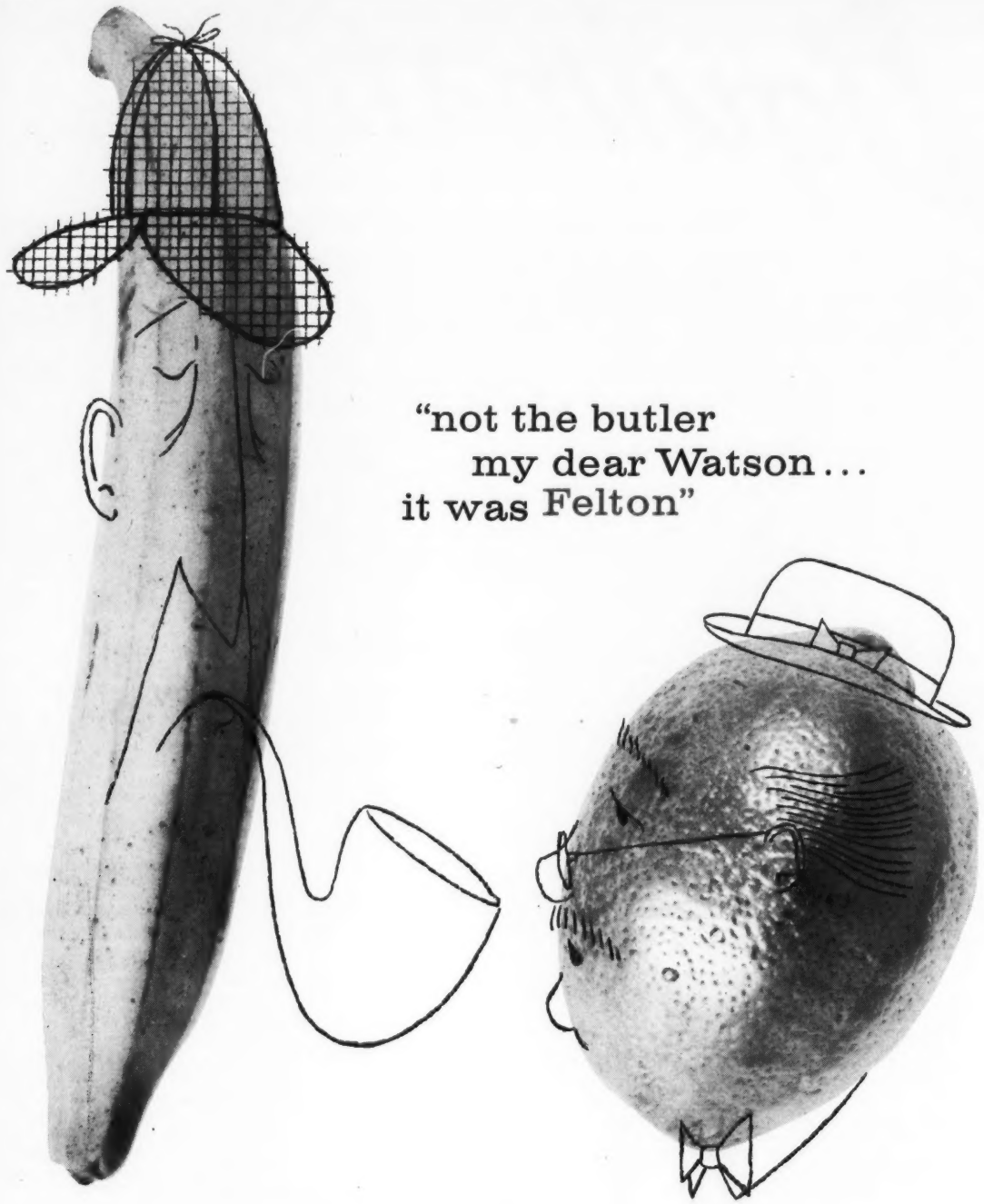

"not the butler
my dear Watson...
it was Felton"

doctor—...but Holmes, sales for the company were on their back. I saw the figure...absolutely flattened!

Holmes—Right! But there was one clue ...The confectionery next to the corpse. Did you taste it?

doctor—You mean...

Holmes—Right Watson. No flavor... No zest...No nothing...

doctor—But Holmes, then how did the corpse come back to life?

Holmes—Elementary, my dear Watson. Only one thing could bring it back to life—Felton's Lively Flavors!

doctor—Amazing deduction.

Holmes—Most elementary, my dear Watson. Most elementary.

Simple deduction, true! But Felton's Lively Flavors are the result of years of imaginative research, skill, and a flair that is unique in the industry. Write for catalog of Felton's Lively Flavors.

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letters

(*Continued from preceding page*)

enormous tonnage of fats is treated by hydrogenation each year to reduce the content of unsaturated fatty acids and increase the content of saturated acids. Practically all vegetable oil shortenings are so processed. Some fraction of the animal fat shortenings are also hydrogenated. These hydrogenated fats are used in the preparation of baked foods, confections, and the like. Some of these hydrogenated fats are consumed in the home in form of retail packaged hydrogenated vegetable oil shortenings.

Let's not do anything further to build on the mistaken notion that hydrogenated vegetable oil shortenings are the same thing as vegetable oils.

Here then is my suggestion for a public relations program by the food processing industries. Encourage the consumption of a well balanced diet with emphasis on the "protective foods" (foods with relatively high contents of protein, vitamins, and minerals) —and the avoidance of "empty calorie foods" (foods composed mainly of refined sugars, starches, and fats, which do not contain commensurate quantities of proteins, vitamins, and minerals).

JOHN E. THOMPSON
President-General Manager
Reliable Packing Company

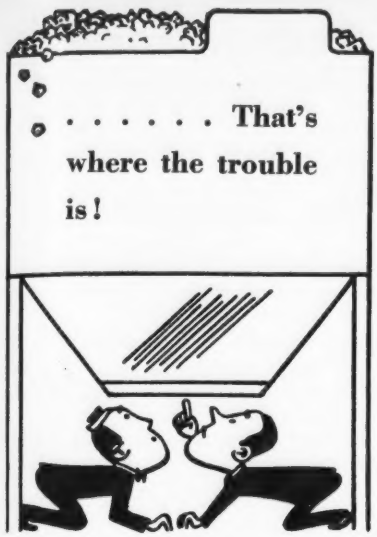
● Readers are invited to submit their views on Thompson's suggestion. Also note Mr. Hostetler's comments on fats, which follow. — EDITOR

CUT FOOD FATS NOW... SCARE PROPAGANDA

Hillsboro, Kans.—While it is not our normal procedure to write letters regarding articles in magazines, we would like to make several pertinent comments in regard to the article by J. Gordon Roberts entitled "Not Premature to Lower Fat Content of Food Products" (July issue, pg 21).

Everyone in this section of the country that is acquainted with the Roberts Dairy Company, will admit that they are smart merchandisers and have done a wonderful job in promoting their own products.

With the amount of publicity given to fat content of food products and the misconception of a large part of the public regarding the use of such foods, it undoubtedly is smart from a promotion and merchandising standpoint to play up those features to the public in order to increase sales. However, it does seem a shame that the head of such a large and well respected organization has to stoop to sensationalism and the public's fear and misconception in



"What do you recommend?" asked the candy manufacturer. We recommended a Type F Cleveland Vibrator, and now his nut meat bins are no longer a production bottleneck.

Many food processors have found Cleveland Bin Vibrators an economical solution to their bulk handling problems. And your employees will appreciate the new silent vibrators that do the job without a murmur.

Tell us about your particular stymie, or ask for our detailed literature. We're sure there's a CLEVELAND to fit your requirements.

AIR *and* ELECTRIC

Bin Stuck Lately?

THE CLEVELAND VIBRATOR COMPANY

2818 Clinton Ave. • Cleveland 13, Ohio

5365 on Reader Service Slip

order to increase sales.

A lot of recent research work indicates that people do better with normal foods in normal amounts. The implications that dairy products are responsible in a certain sense for heart troubles, certainly does not take into consideration the fact that incidence of heart disease in US is higher than in any other country. However, we are way down the list when it comes to the per capita consumption of dairy products.

A lot of things just don't add up to facts. National Dairy Council recently stated as a result of a special research conference, "Contrary to reports which have appeared in recent months, there is no proof that fats in dairy products are a cause of heart disease. Other factors besides diet must be considered".

There is no doubt but what many a company has been able to cash in on scare propaganda that has been adequately publicized. However, from the standpoint of the welfare of the public, as well as for the good of the dairy industry, it is our feeling that building a business on this type of advertising is not sound, nor is it fair to the consumers.

We realize that there is a place for a low-fat type of product for certain individuals, and if it is promoted for the welfare for those individuals that would certainly be commendable. However, trying to foster the idea onto the entire public certainly is not in accordance with facts.

P. H. HOSTETLER
Manager
Central Kansas Co-operative
Creamery Association

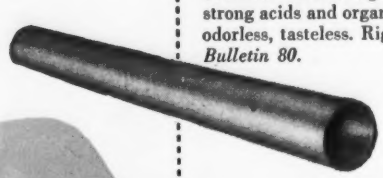
● Interpretation of available facts is still controversial with regard to the actual relationship of fats to heart disease. However, as of August, these facts were sufficient for the authorities constituting the Nutrition Committee of the American Heart Association to recommend that "The fat content (of the diet) should be sufficient only to meet caloric and essential fatty acids needs". —EDITOR

Views of 18 authorities

Terse commentaries of eighteen authorities on recent developments in fats have been combined into a 12-page reprint (convenient size of 8½ by 11"). Their views first appeared in the January, March, and April issues of FOOD PROCESSING. To secure one of these reprints send 50c to The Editor, FOOD PROCESSING, 111 East Delaware Place, Chicago 11, Illinois. Quantity prices on request.

TOUGH ACE-ITE PLASTIC PIPE

General-purpose moderately priced rubber-plastic pipe handles most common chemicals to 170 deg. F. . . . except few strong acids and organic solvents. Tough, odorless, tasteless. Rigid pipe ½" to 6". *Bulletin 80.*



ACE offers 100 years experience to

STOP CONTAMINATION

To prevent discoloration, taste, odor or metallic pick-up in your processes, you'll find the best, most economical piping, pumps, valves and tanks among the many ACE rubber and plastic materials. Wide range of temperatures, pressure, impact resistance. Phone nearest American Hard Rubber Company distributor, or write for Technical Data CE-50.

VALVES
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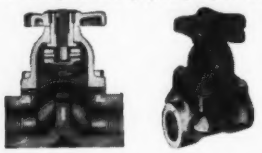
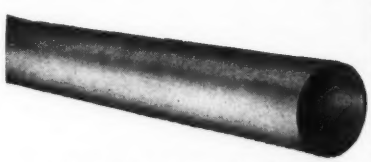
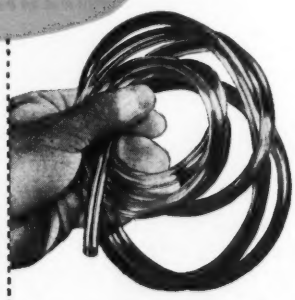


Trouble-free plastic diaphragm valves . . . choice of general-purpose ACE-ITE, ACE PARIAN (polyethylene) or ACE SARAN. Handles most corrosive chemicals and food ingredients. Sizes ½" to 2", 50 psi. at 77 deg. F. *Bulletins 80 and 351.*



RIGID VINYL . . . STRONG. AGE-PROOF

ACE RIVICLOR is a new rigid threaded plastic pipe with good aging and high impact strength. Not affected by most inorganic acids and alkalis, also excellent for many organics. Sizes ½" to 4". *Ask for Bulletin CE-56.*



1001 USES for ACE-FLEX Tubing

Excellent chemical-resistant, all-purpose flexible plastic tubing. Sparkling clear, easy to clean, odorless, non-toxic, can be steam-sterilized. ⅛" to 1" ID. *Bul. 66.*

ACE processing equipment of rubber and plastics

AMERICAN HARD RUBBER COMPANY
Ace Avenue • Butler, New Jersey
DIVISION OF AMERACE CORPORATION

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WIN IN THE BATTLE OF BRANDS

There are more than 150,000 brand names registered in the United States—competing for the customer's attention.

In this "battle of brands" brightly printed Gaylord Boxes are a vital link in the chain of visual impressions that pays off in sales.

This is true because Gaylord excels in printing. Gaylord has the specialized experience and equipment to make quality boxes do their selling best—with your brand name accurately expressed in eye-catching colors.

Put Gaylord Boxes on your selling team. Call your nearby Gaylord office.

Gaylord Boxes

CORRUGATED AND
SOLID FIBRE BOXES • FOLDING CARTONS
KRAFT PAPER AND SPECIALTIES
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food regulations

Congress Acts on Only 1 of 5 Food Bills Before Adjournment

Approves poultry inspection; fails to pass legislation concerning food additives, packers trade practices, humane slaughter, and livestock check-off

The week before Congress adjourned for the year, only one of five bills pertaining to the food industry was passed. The one was mandatory poultry inspection.

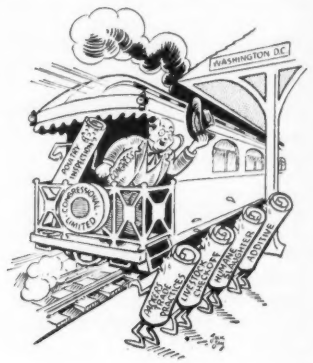
Bills that did not get through this year, but stand a good chance in '58 include these, according to Washington officials:

(1) food additive legislation;

(2) a bill to allow "check-off" or deduction of livestock producers' receipts, the funds to be used in financing consumer promotion advertising of red meats;

(3) "compromise" legislation that will make food retailers who have an interest in meat packing plants subject to regulation by the Federal Trade Commission;

(4) federal standards, probably voluntary in nature, which may be established for "humane slaughter" of livestock and poultry.



Asian flu vaccine priority to food plant employees, canners recommend

Priority lists for Asiatic flu vaccine should include people engaged in food processing and distribution, the National Canners Association believes. A recommendation to that effect has been sent to the Secretary of Health-Education-Welfare by the NCA which says, "A breakdown in the production and distribution of a well-balanced food supply during an epidemic could be as serious a public health matter as the disease itself."

Continue voluntary reduction of wheat, corn, rice yields through soil bank bill

Food processors will be coping again next year with the government's "soil bank acreage reserve", a program that has nothing to do with building fertility of the land, but is aimed at holding down crop production. Food cropland eligible to be taken out of production and put in the bank includes wheat, corn, and rice.

Even agricultural leaders in Washington are resoundingly unenthusiastic about the acreage reserve program, but are going along with it for another year.

US Budget Bureau delays FDA expansion program

FDA officials were fit to be tied as we went to press, and for an understandable reason: The government's Budget Bureau had refused to allocate extra first-quarter funds voted by Congress for the agency's expanded program.

Meantime, as one official put it, "everything is on dead center". Plan had been to put about 40 new employes to work early in the current fiscal year with the additional appropriations. Many had sold

their homes and come to Washington, only to find they hadn't a job.

The Budget Bureau action was almost sure to arouse a storm. Fact is that Congress, before adjournment, had approved by large voting margin the new funds for FDA.

Defense Dept. has no money?

Reports were that the Budget Bureau had withheld the funds for one or both of two reasons:

(1) that the Defense Department was short of money and therefore the government was holding up allocations to other agencies;

(2) that the Administration is determined on a tax cut for next year and was taking drastic steps to reduce its budget.

Chances were that the whole thing would be straightened out, perhaps by the time you read this. Protests of Congressmen who were involved in the appropriations hearings were expected to prevail, eventually.

Meantime, FDA expansion program was delayed, at least for a few weeks.

Here are main provisions of poultry inspection law

Hermon Miller

New federal inspection law covering poultry is "excellent" in the view of officials here who are to operate the program. All major provisions follow closely recommendations of processors and other segments of the industry.

Soon after signing of the legislation by President Eisenhower, Agriculture Secretary Benson named the Poultry Division of the Agricultural Marketing Service, headed by Mr. Hermon Miller to carry out the law.

This decision has been expected. Processors had feared, however, that Mr. Benson might possibly turn the job

(*Continued on next page*)

Accent Flavor-Gram

CAPSULED NEWS FROM THE WORLD OF FLAVOR

✔ NOW, EVEN THE PILL-MAKERS ARE RECOGNIZING THE IMPORTANCE OF FLAVOR! Covering a bad tasting medicine with a pleasant flavor has now become an exacting science with pharmaceutical makers, reports "What's New in Food and Drug Research."

Today, pharmaceuticals are being grouped with flavoring agents that are compatible and familiar so as to not shock the palate. Bitter compounds, such as barbiturates and tranquilizers are enjoying a pleasing flavor; the sours are being shifted toward the acceptable taste of citrus, and so on.

Today's pharmaceutical makers are more and more flavor-conscious because they have discovered that tasty medicinals are good business.

✔ WHAT'S NEW IN THE '57 EDITION OF THE FROZEN FOODS INDUSTRY'S "BIBLE"? To cover all the revolutionary strides in the frozen food industry, the third edition of "The Freezing Preservation of Foods" has been published in two volumes by Avi Publishing Company, Westport, Connecticut.

In Volume I, you'll find entirely new chapters on: Dehydrofreezing of Fruits and Vegetables . . . The Freezing Concentration of Juices—Freeze Drying . . . Vacuum Concentration—Freezing Concentrated Juices . . . The Preparation and Freezing of Game . . . The Warehousing of Frozen Foods . . . as well as a new chapter on the marketing aspects of frozen foods.

Volume II is the first comprehensive book that deals with the production, marketing, and use of frozen precooked and prepared foods, desserts, baked goods and confections.

Authored by Donald K. Tressler, Scientific Director, Quartermaster Food and Container Institute and Ac'cent's New Products Technical Director, Clifford F. Evers, this is the authoritative and all-inclusive "bible" for everyone in the frozen food industry.

✔ HOW DO YOU BECOME A LEADER IN THE SOUP BASE FIELD? Use only the best of ingredients . . . make the most of their flavors . . . and have an absolutely accurate quality control. This is the successful formula of the Mary Lynn Division of Choldun Manufacturing Co. of New York, specialists in soup bases and mixes.

They use only natural products—no synthetics and no artificial flavors. They import such raw materials as barley and onions from Holland, beef extract from Argentina, spices from the Philippines, and herbs from six countries.

In the blending of these fine ingredients, they enhance their excellent flavors with Ac'cent brand of monosodium glutamate. Flavor retention is of extreme importance, as a chef may add nothing except water to the soup base.

✔ THE FRESHER THE VEGETABLES, THE GREATER THE GLUTAMATE CONTENT. The glutamate content of many vegetables fades progressively during storage, shipping and processing. Ac'cent restores the natural glutamate content to its original level and even intensifies the natural flavor (from article in Food Technology by Hac, Long and Blish.) Ac'cent, pure monosodium glutamate, is the ingredient that enhances and retains flavors in most meats, poultry, fish and soups as well as vegetables, without adding a flavor of its own. Because of its important flavor enhancement and retention properties, monosodium glutamate is used today in more than 8,000 processed and prepared food items.

And because Ac'cent is stable, it holds these natural flavors through freezing, canning, storing. Ac'cent literally "keeps foods young".

✔ FLAVOR IS THE MAIN BUSINESS OF AC'CENT · INTERNATIONAL. These monthly reports on new developments and happenings in the Food Processing Industry are just one of the many services we offer you.

As the American pioneer of monosodium glutamate and flavor development, let our experience, our research and technical facilities and qualified personnel help you solve your flavor problems.

If you would like to know more about the news items reported here, just drop a line on your letterhead to Technical Service Dept., Ac'cent · International, 20 N. Wacker Drive, Chicago 6, Ill.

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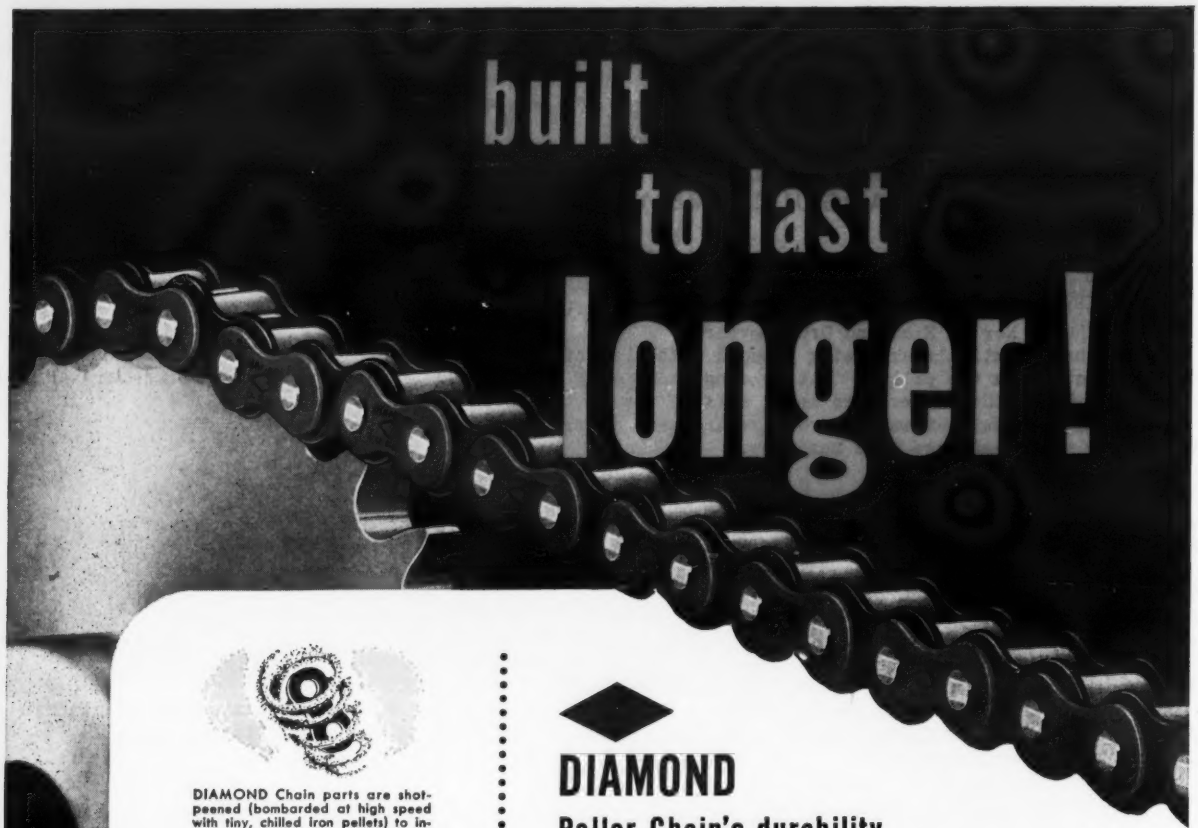
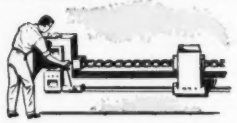
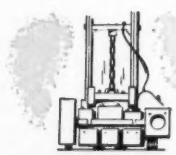


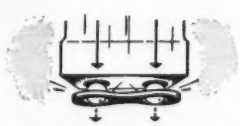
DIAMOND Chain parts are shot-peened (bombarded at high speed with tiny, chilled iron pellets) to increase inner toughness and load-carrying capacity.



DIAMOND Roller Chain is pre-loaded and tested before shipment. Parts are seated, initial stretch taken out.



DIAMOND Roller Chain is shock-tested and fatigue-tested at loads and speeds far exceeding actual operating service requirements.



DIAMOND pin holes are ball drifted (DIAMOND'S own patented process) to assure full press-fit holding power . . . greater shock load capacity.

DIAMOND

Roller Chain's durability reduces equipment downtime and repairs . . . cuts production losses

DIAMOND chains are the product of more than 65 years' experience in solving difficult problems of load, shock, fatigue and abrasion. Only DIAMOND gives you the advantage of so many engineering refinements and advanced manufacturing techniques. Only DIAMOND gives you roller chain so thoroughly proven for dependability and long life in every *power transmission* application.

DIAMOND *durability* pays off in reduced equipment downtime . . . fewer production delays . . . fewer chain replacements. *DIAMOND saves money because it gives you more productive "mileage" per chain dollar!*

• **Your DIAMOND Distributor has all types and sizes of standard Roller Chain in stock. Special alloys and stainless steel are available for corrosive conditions. Look under "Chains" or "Chains, Roller" in the Telephone Directory YELLOW PAGES . . . or write to factory for Diamond Chain Catalog No. 757, and name of your nearest Distributor.**

DIAMOND CHAIN COMPANY, INC.
A Subsidiary of American Steel Foundries
402 Kentucky Avenue, Indianapolis 7, Indiana
Offices and Distributors in All Principal Cities

DIAMOND **ROLLER CHAINS**

5369 on Reader Service Slip

food regulations

(*Continued from preceding page*)
over to the department's Meat Inspection Branch of the Agricultural Research Service. This had been urged by some groups, notably veterinary and labor organizations.

The Poultry Division of AMS, processors feel, as apparently does Mr. Benson, will bring more sympathy and experience to the mandatory inspection job. It is this agency which now carries out the voluntary inspection program under which about 50% of all poultry shipped interstate is already being inspected.

500 inspectors on the job

More than 500 poultry inspectors are already on the job, about 300 of the number being trained veterinarians, Miller says. New men, he adds, are being trained.

Congress, before adjournment, appropriated funds to cover mandatory inspection costs which are to be borne by the government (with certain exceptions, such as holiday and overtime pay for inspectors). Thus, consumer prices should be slightly lower than otherwise, officials say. They believe compulsory inspection will bring an increase in per capita consumption.

Under terms of the law, the inspection program does not become mandatory until Jan. 1, 1959 (although processors and others may ask for the service to start after Jan. 1, 1958).

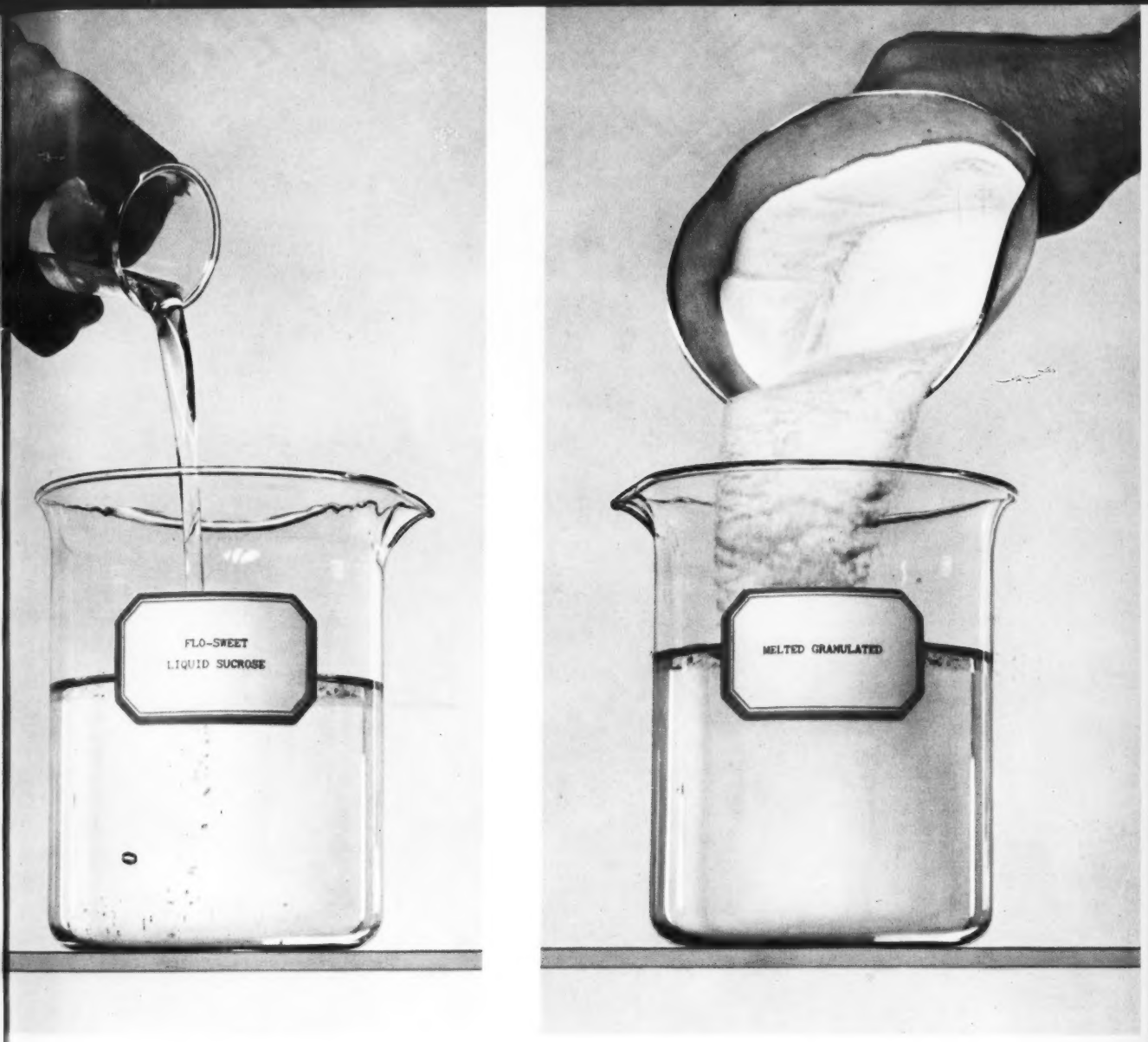
Exceptions to the law

Inspection will not be required of poultry producers who sell directly to household consumers. Nor will the law apply to producer sales to hotels, boarding houses, institutions, etc. — so long as the poultry is consumed on the premises of these places.

The law will apply mainly to processed poultry moving across state lines. Inspection

(*Continued on page 17*)

For more information on product at right, specify 5370 . . . see information request blank opposite last page.



HERE'S Quality YOU CAN SEE!

What could look purer than the sparkling white crystals of granulated sugar?

It has long been the custom to compare the color of granulated—*dry*—with liquid sugar. But true comparison can be made only when the granulated is dissolved. These photographs, of samples in 1000-milliliter beakers, show what can happen: the brilliant white granulated actually shows much more color than Flo-Sweet! The illustration at right shows the color of a mixture of *three* commercial granulated sugars.

What does this mean to you? Just this: You can get a good idea of the purity of a sugar by its color, since color is a fair indication of refinery efficiency.

With the current trend toward higher and higher quality in food products, only the best ingredients are good enough for the discriminating food producer. Whether you judge quality on the basis of color, taste, or laboratory analysis—we urge you to compare Flo-Sweet quality with any other sugar, liquid or granulated.

For here's true sugar quality . . . quality you can *see!*

REFINED SYRUPS & SUGARS, INC.

YONKERS, NEW YORK

FLO-SWEET
FIRST IN LIQUID SUGAR

SERVING INDUSTRIAL SUGAR USERS EXCLUSIVELY FROM YONKERS • ALLENTOWN • DETROIT • TOLEDO

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The emblem at right is that of NBP—National Business Publications. You've probably seen it before on our contents page . . . rate card . . or heading the FOOD PROCESSING listing in Standard Rate & Data. Because we're proud of it.

It signifies that FOOD PROCESSING has qualified for membership in the largest association of technical, scientific and professional journals in the United States. (We're proud, too, that our F. P. executive staff includes a past president of NBP and a member of its Board of Directors.)

But belonging to NBP is more than a feather in our publishing cap. It's an important *plus* for every advertiser in FOOD PROCESSING. Here are the membership requirements. Judge for yourself:

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Food Processing

For men who manage the Food Processing Industries

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. . . terse, vital editorial; "hand-picked" circulation; square, high-visiblity format; quality readership; hence more READER ACTION

ABP NBP

PUTMAN PP PUBLISHING

* Courtesy of the publication MEDICAL ECONOMICS, creator of this copy, here adapted to FOOD PROCESSING

excellent for baked foods and ice cream

If you're cost-conscious and quality minded, here's a great idea! Bakers and ice cream makers know that the use of CONSOLIDATED DRY SWEET WHEY reduces cost, improves quality and aids processing.

prepared mixes . . . fish sticks . . . pot pies

CONSOLIDATED DRY SWEET WHEY is just as valuable in producing breaders, prepared mixes, soups, meat products, confections and numerous other foods. Its unique combination of albumin protein and milk sugar favors browning and color development. It promotes lasting tenderness, texture and flavor.

significant savings

Priced significantly under other dairy ingredients, CONSOLIDATED DRY SWEET WHEY is non-hygroscopic . . . quality controlled to exceed U.S. Extra Grade Standards.

So capitalize on this idea. Let our technical department cooperate with yours in research that may lead to surprising cost reduction and product improvement for you.

Write Today for Free Bulletins!

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Manufacturers of Extra Grade Whey and Buttermilk Products

5371 on Reader Service Slip

food regulations

(*Continued from page* 14)

may be required, however, in a so-called "major consuming area". An example would be a large city which might be designated as an "interstate" market, even though it lies within one state. Such areas would be established by the Agriculture Secretary after local requests for inspection and public hearings.

Main provisions of the new law will require:
(1) carcass-by-carcass inspection after slaughter;
(2) inspection before slaughter on a "lot" basis when the Agriculture Secretary determines this is necessary;
(3) Condemnation of carcasses found to be adulterated or unwholesome;
(4) proper labeling of each poultry product, including net weight;
(5) sanitary processing facilities with separate rooms for slaughter and evisceration.

Congratulates Ike

Said Dr. Cliff D. Carpenter, president of the Institute of American Poultry Industries: "The President and Congress are to be congratulated on the mandatory inspection bill which has been made law. . . With this legislation, too, the poultry industry will be in a position to compete on an equitable basis with other meats, since the cost of inspection will be paid from federally appropriated funds. . .

"We feel," Carpenter went on, "that the Institute and other groups now face the responsibility of lending valuable assistance, by way of conferences and hearings, to develop regulations which will carry out the intent of the Congress as prescribed by law, while at the same time maintaining the economic gains industry has already made."

Regulations ready in month

USDA officials tell Food Processing that inspection regulations, intended to carry out the purposes of the new law, are now being written.

(*Continued on next page*)

✓CHECK LIST FOR "PRODUCTS WITH A PURPOSE"

. . . whether for a new product . . . an improved product . . . or in the development of a theory . . . we invite you to check any or all of these items for specific information on how they can be utilized to your advantage.

- ☐ Entrapped Powdered Flavors
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- ☐ Imitation Fruit Flavors
- ☐ Maple Flavor Specialties
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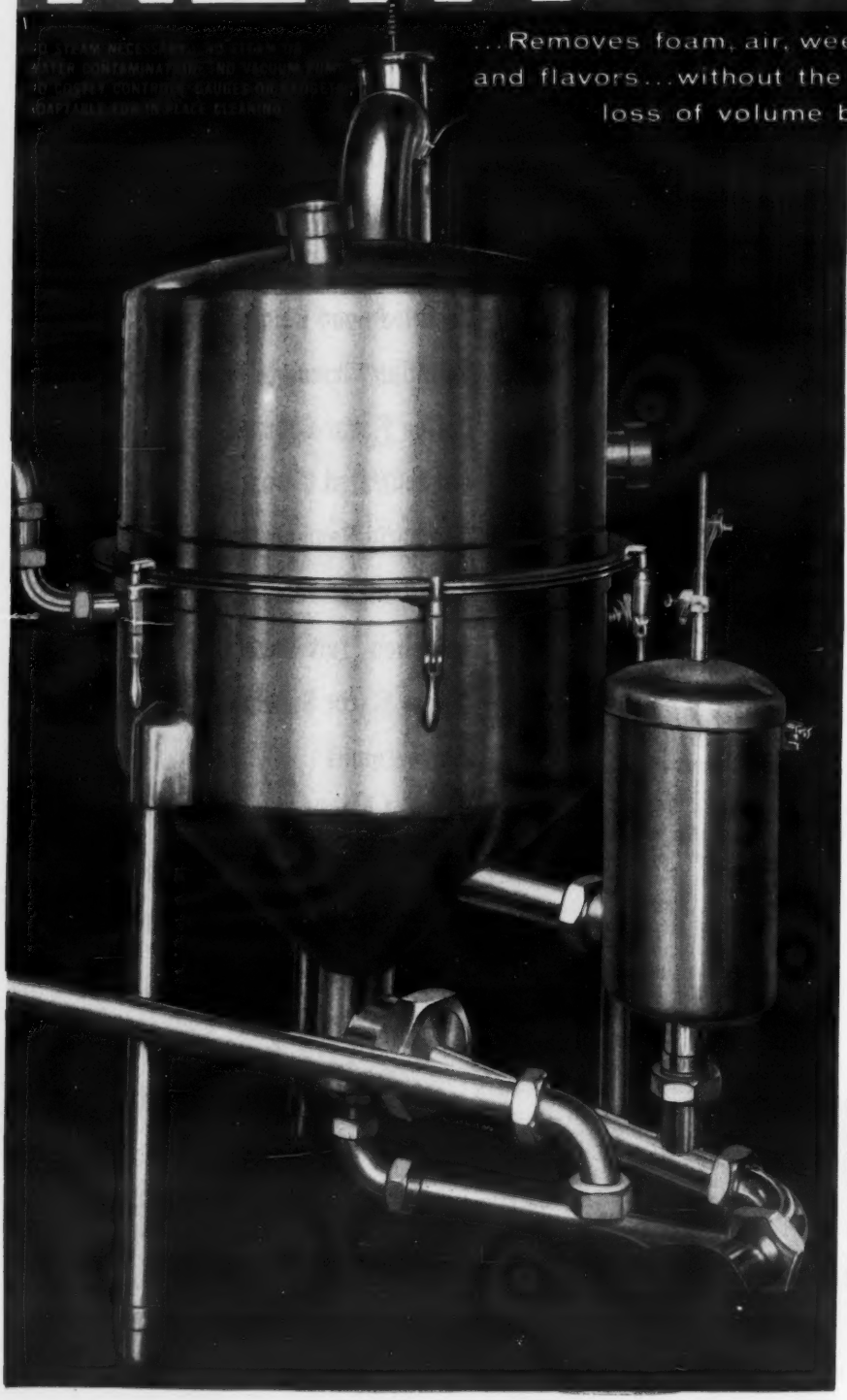
AGAIN...ROSWELL IS FIRST!

NEW! VAPOR PRESSURE MILK "DE-ODERATOR"

That saves* 1% of your total milk volume!

...Removes foam, air, weed and feed odors and flavors...without the usual hidden loss of volume by concentration...



Here is the most practical, economical de-odorizer ever devised. It uses no steam injection, therefore does not dilute the product. It uses no vacuum pump, therefore causes no loss of product volume through concentration or entrainment. You get fresh, rich-flavored milk at absolutely lowest cost. 8,000 to 30,000 lb/hr. continuous flow. Can be used in regular H.T.S.T. plate operation as well as Roswell U.H.T. process. For complete data on this amazing *pays-for-itself* Roswell "De-Oderator", write directly or contact your nearest Roswell Distributor.

* *Many users of vacuum de-aerators note no loss of butterfat—but do not realize that they may be losing up to 1% of total volume—a monthly loss of $1980 in plants processing 200,000 lbs. per day.*

Says J. Polivka Sr., Willow Farms, La Grange, Ill., "We have not had a single complaint on feed or weed flavors in our milk since we installed the Roswell 'De-Oderator.'"

Roswell
Vapor Pressure
De-Oderator Fits Needs of
All Large or Small Dairies

Chicago Stainless Equipment Corp.
5001 ELSTON AVENUE
CHICAGO 30, ILLINOIS

5373 on Reader Service Slip

food regulations

(*Continued from preceding page*)

They won't be ready for about a month, perhaps longer. Meantime, however, you can get on the list to receive a copy by writing the Poultry Division, USDA, Washington 25, D. C.

Brief but important

FDA has stayed, pending public hearing, its ban of FD& C Yellows 1,2,3, and 4 and amendment of its definition of coal tar colors. The ruling on yellows has been protested by the Certified Color Industry committee. Hoffmann-La Roche has proposed a coal tar definition to exempt both natural-source colors and their synthetic counterparts.

New Labelling

...requirements, announced by FDA, specify listing of ingredients on several foods, previously exempted. See article page 36.

FDA STANDARDS

List of foods for which standards have been established is available from Food & Drug Administration, Washington 25, D. C.

Rice: Standard for enrichment allows two processes. One makes the product "rinse resistant", or resistant to loss of vitamins when rinsed before cooking. The standard would require packers to test the product to assure that loss in rinsing is kept to a specified minimum. The second process involves coating the product with enriching ingredients, and placing this cautionary phrase on the label: "Do not rinse before or drain after cooking".

The government proposal calls for each pound of milled rice that is labeled "enriched" to contain 2.0 to 4.0 mg of thiamine, 1.2 to 2.4 mg of riboflavin, 16 to 32 mg of niacin, and 13 to 26 mg of iron. Cost of these enrichment ingredients, say officials, would be about 5c per 100 pounds of

rice. The rice packer may, in addition, enrich the product with vitamin D, or calcium, or both. If he chooses to do so, each pound of the product would have to contain 250 to 1000 USP units of vitamin D or 500 to 1000 mg of calcium. At present, officials say, "there is no rice on the market which fully conforms with the standard". South Carolina, however, has a compulsory enrichment standard which is the same as the new federal standard except that riboflavin is an optional ingredient. The federal standard becomes effective six months after its publication on Aug. 27, 1957, unless there are objections.

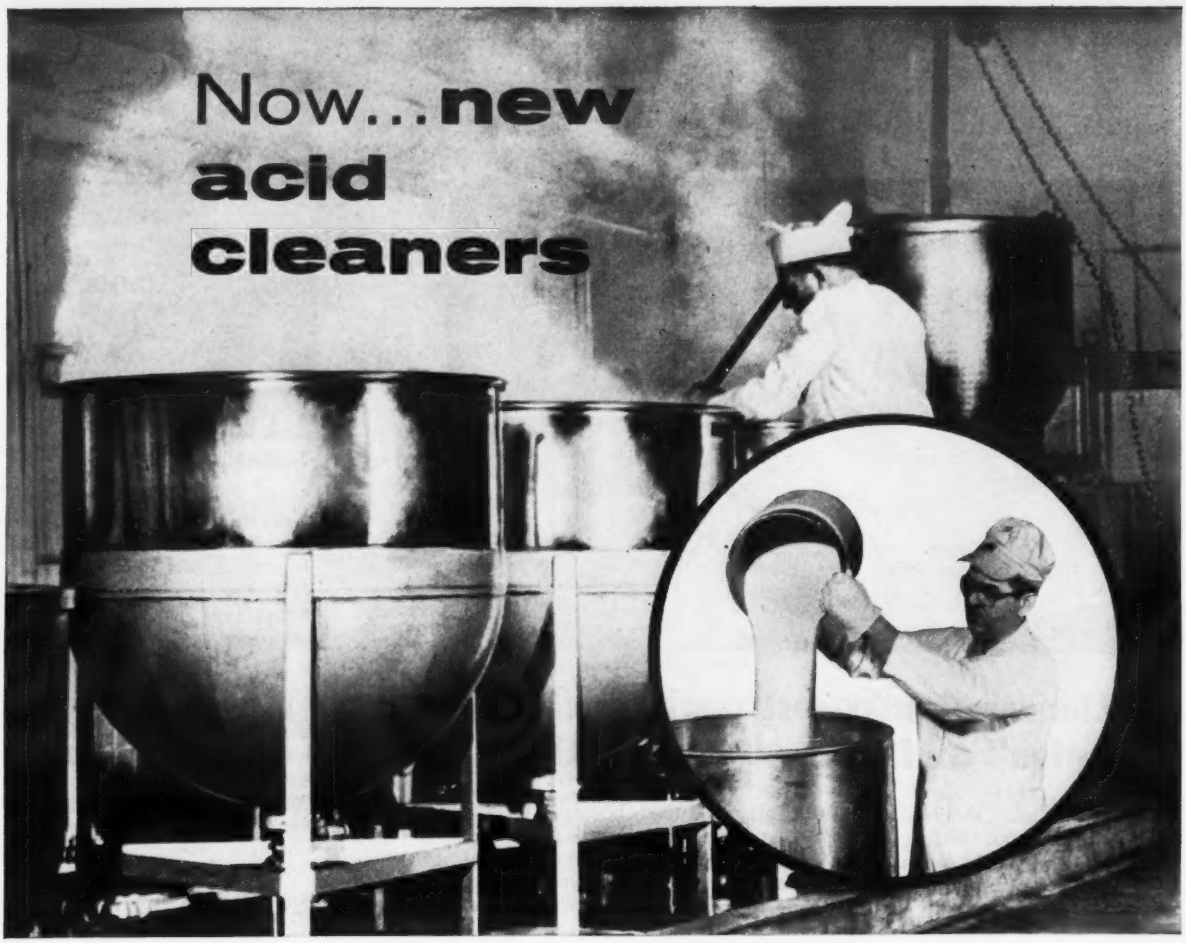
USDA GRADE STANDARDS

Checklist of new or proposed grade standards issued by USDA follows. Except where noted, complete texts can be secured from USDA, Fruit and Vegetable Branch, Processed Division, Washington 25, D. C.

Grape juice: First standards for frozen concentrated sweetened grape juice will become effective on Nov. 1, 1957. Standards apply to the product prepared either from Concord type of the Labrusca species, or from a blend of not less than one-half Concord with other varieties. It is specified that not less than 50% of total solids of the finished concentrate for each type shall be derived from grapes. The product is to be classified Grade A or Fancy, Grade B or Choice, and Substandard. Quality is determined by scoring on the basis of color, defects, and flavor. The product must also mix properly into grape juice beverage.

Currants: Proposed amendment for the dried product would change wordage — from "poorly developed, blowovers", to "undeveloped, worthless", retaining the same allowances for these defects as in present standards. Another change would eliminate the definition and methods for ascertaining "moldy" currants.

(*Continued on page* 133)



in easy-to-handle **dry** form

Cleaners based on Du Pont Sulfamic Acid are safer, more convenient, non-fuming... dissolve in water to form effective, low-corrosive solutions

Now . . . powerful acid cleaners you handle *dry* with no fumes, no hazardous acid splashing! When added to water, these cleaners form solutions equal to hydrochloric acid in penetrating power. Yet they're far less corrosive. The key to these unusual properties is Du Pont Sulfamic Acid.

Cleaners based on sulfamic acid remove scale and protein deposits quickly, thoroughly . . . keep cooking and mixing kettles, evaporators, food pipelines and other stainless-steel equipment operating at peak efficiency. And, because these cleaners are easier to handle and store, their use results in lower labor and storage costs.

We'll gladly send you additional information on sulfamic acid-based cleaners, and the names of formulators who offer these new compounds. Just mail the coupon below.

DU PONT
SULFAMIC ACID
DU PONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Room N-2533
Wilmington 98, Delaware

Please send me ☐ sulfamic acid general equipment cleaning bulletin; ☐ names of formulators offering cleaners based on sulfamic acid.

*Name*_____

*Company*_____

*Address*_____

*City*_____ *State*_____

5374 on Reader Service Slip

Before you buy any boiler

compare quoted prices with REAL COSTS

New Cleaver-Brooks cost analyzer clears "quotation" confusion — reveals ALL costs

Get *all* the costs . . . the *real* costs . . . down on paper before you recommend or specify a boiler to your clients. On many boiler installations "quoted prices" seldom agree with the total costs, as you may have learned. This is frequently the case with so-called "built-up" boilers assembled on the site.

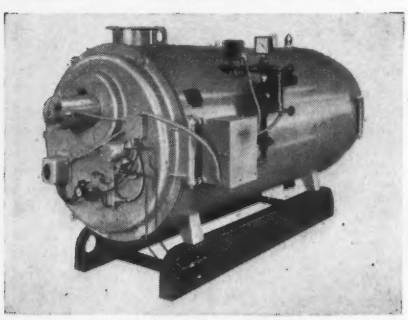
Cleaver-Brooks' cost analysis enables you to compare all material costs (boiler, steam trim, burner, refractory, controls and other equipment) and installation labor costs. You'll know the "real costs" on the complete installation before you start.

Real eye-opener

The figures you'll see may be startling. In most cases the cost analysis proves a Cleaver-Brooks costs *less*. On-job time is drastically reduced because Cleaver-Brooks packaged units are fully assembled, ready to install. Cleaver-Brooks boilers give you more in performance, too . . . each boiler is fully fire-tested at the factory under load, tuned to peak economy. Starting service and on-the-job operator training by authorized field engineers further decreases your over-all costs.

Contact your Cleaver-Brooks agent

Once you add up all the benefits of a Cleaver-Brooks "one-cost" package . . . the proved trouble-free economy of exclusive four-pass, forced-draft design, you'll find it pays over and over to analyze costs carefully before you buy. See your Cleaver-Brooks agent for details or write Cleaver-Brooks Company, 357 East Keefe Avenue, Milwaukee 12, Wisconsin, Dept. L.



Choose from 19 sizes, 130 models, 15 to 600 hp. Oil, gas and combination oil/gas fired — steam or hot water for heating or processing.

Cleaver Brooks

ORIGINATORS OF SELF-CONTAINED BOILERS

5375 on Reader Service Slip

plants companies personalities

C. MacMillan

Cargill, Inc., nationwide grain handling and processing firm, has elected **Cargill MacMillan** president. He was formerly executive vice president. Other appointments include: former president **John H. MacMillan, Jr.,** to board chairman; **H. Terry Morrison** and **Erwin E. Kelm,** both to executive vice president.

General Mills Larro Research Farm at Indianola, Iowa, dedicated recently, has some 700 tillable acres. Some 350 of these will eventually be worked into permanent beef pasture. Research activities are carried on in a number of modern buildings. Farm is 972′ above sea level. Average annual rainfall is 31″, mean temperature 50°F.

California Vegetable Concentrates, Inc., recently put into operation a new 70,000 sq ft dehydrating plant. Located just outside Modesto, Calif., CVC's Plant No. 4 employs a new continuous dehydrating process invented recently by the USDA's Western Regional Research Laboratory, Albany, Calif.

R. E. Liptrott

R. Edward Liptrott has been named vice president and general manager of the Salada Division of **Salada Shirriff-Horsey Inc.,** Boston, Mass., He has been associated with Salada Tea in the US and Canada for more than 23 years. **H. M. Tibbetts** has been appointed associate vice president of Salada Division.

Paul Zuckerman, president of Velvet Peanut Products Div. of **Sunshine Biscuits, Inc.,** has been elected vice president of the parent firm.

R. M. Schaffner

Libby, Mc Neill and Libby, Chicago, has elected **Dr. Robert M. Schaffner** vice president in charge of research and quality control, succeeding **John T. Knowles** who is retiring from the firm after 47 years of service. Most recently, Dr. Schaffner was assistant to Knowles. In another top personnel change, **Kenneth C. Hardwicke** was appointed vice president in charge of the company's salmon operations (Seattle), succeeding 41-year Libby veteran **Guy V. Graham.**

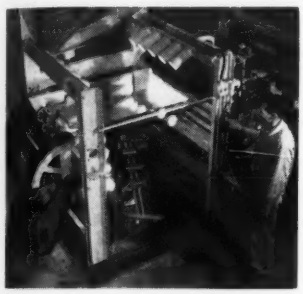
A fully equipped foods development laboratory has been installed and staffed by **Morningstar, Nicol, Inc.,** at Hawthorne, N.J. Work will be aimed at helping the food processing industries utilize the firm's new specialty

starches and refined natural gums. The laboratory also will conduct basic food research studies, and will be coordinated with the adjacent general research group. **Leonard M. Waldt,** above, is in charge of the foods development investigations.

John L. Cassullo has been re-elected president of **Fritzsche Brothers, Inc.**, New York City. Vice presidents re-elected were: **Ernest Guenther, Frederick H. Leonhardt, Jr.**, and **H. P. Wesemann. Edward E. Langenau**, director of the analytical laboratory, was elected vice president.

Swift & Company, which utilizes a new, humane type of stunning instrument at all of its US beef processing plants, has been awarded the American Humane Association's Seal of Approval.

Open first Western plant to process tinplate from coils



American Can Company's newly dedicated 60,000 sq ft plant at Oakland, Calif., is the West's first to automatically cut, inspect, sort, and sheet tinplate from coils. It is capable of turning out 200,000 tons of processed can-making plate/yr. Photo shows the type of equipment that makes this output possible. Here steel sheet, from 15,000 lb coils, moves at 600 linear ft/min, as mirrors above and below aid attendant in spotting imperfections. At attendant's right, automatic electronic equipment also scans racing metal to check on thickness and uniformity of surface. In next step of operation, giant shears cut steel into sheets at rate of 200 three-foot sheets/min.

The Oakland installation is the second coil line Canco has placed in operation in the company's $27 million construction program. Seven other coil facilities are expected to be operating soon.

LUDFORD FRUIT PRODUCTS INC.

1411-21 SOUTH WESTERN AVENUE, LOS ANGELES 6, CALIFORNIA

Morehouse-Cowles, Inc.
1150 San Fernando Road
Los Angeles 65, California

Attn: Mr. D. L. Grubbs

Gentlemen:

For over 10 years our SS-25 Morehouse Mill has been grinding out true fruit flavoring extracts -- 6 hours a day, 5 days a week. In this entire time we have not lost 10 minutes for repair.

The mill gives us control of the fine, uniform particle size we need, and turns out a big volume of emulsions that remain stable up to 3-4 years. We use it on a wide variety of materials. The Morehouse is very definitely the most dependable machine available -- and we've tried them all.

Our new 10D Cowles Dissolver has replaced three ordinary mixers and homogenizers, and given a 60% increase in solid-liquid dispersion volume as well. We have never seen anything to equal the Cowles. Even our little 1VG Cowles laboratory model is used for production as well as pilot work.

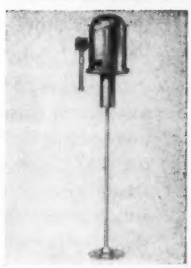
The mill, teamed with the large dissolver, gives us a further big increase in production, and very economically. We are convinced that in these two machines we have the most versatile, big-volume production system we can get.

Thought you'd like to know that we appreciate the good service, too.

Sincerely,
Ludford Fruit Products Co., Inc.

Paul Ludford

Paul Ludford.



"...most versatile, big volume production system"

Above — Morehouse Mill, Stainless Steel Model SS-25

Right — Cowles Dissolver Unit 10D

. . . this Morehouse Mill-Cowles Dissolver production record can show you the way to greater profits. Read the pointed remarks above by a prominent processor of flavoring extracts.

WHAT CAN YOU EXPECT OF THESE MACHINES?

From your Morehouse Mill — four times the speed for grinding meats, fruits, peanut butter, vegetables and similar products. Complete control of grind size — no contamination — more uniform, stable end-product.

From your Cowles Dissolver — faster production, improved quality, higher yield, lower power consumption — up to 2½ times the speed for ultimate dispersion on liquid-liquid, gas-liquid or solid-liquid products: foods, beverages, condiments, drugs, pharmaceuticals.

From your Morehouse and Cowles TEAM — up to 10 times the production volume of ordinary machines.

LET US PROVE IT IN YOUR PLANT—AT OUR RISK!

MOREHOUSE® COWLES®

Write today for complete details

Morehouse-Cowles, Inc.
1150 San Fernando Rd., Los Angeles 65, Calif.

Distributors in Principal Cities

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Using Salt Efficiently

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt

How to Store Large Tonnages of Rock Salt in Limited Space

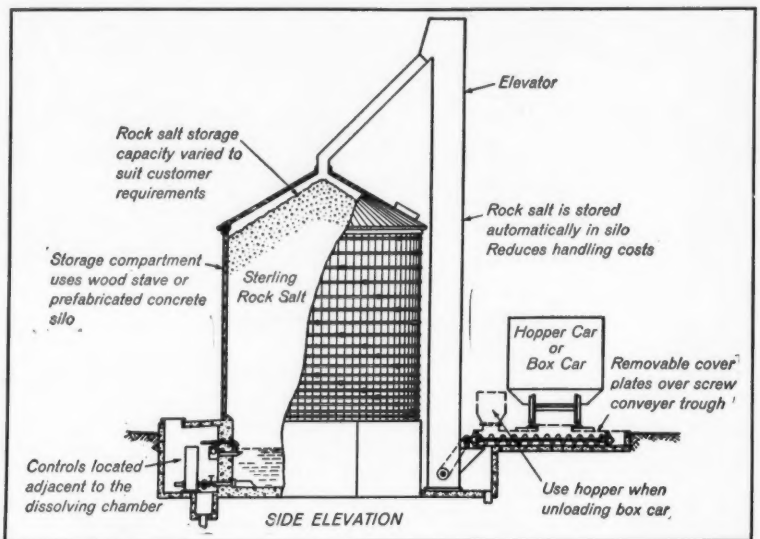
One of the best ways to increase salt-storage capacity, without taking up valuable indoor or outdoor plant space, is to install a "Silo Lixator." Developed by International, this space-saving unit—which *combines* salt storage with brine making—is especially practical where storage areas in or around the plant are at a premium.

The Silo Lixator makes excellent use of limited storage space, because it stores rock salt in a high, vertical column. The upper portion of the column stores dry salt. And the bottom of the salt column rests in a dissolving tank, where water is added to make brine. Whenever salt in this tank is dissolved to make brine, it is immediately replaced by dry salt flowing down from the upper portion of the column.

In addition—and this is an important, money-saving feature—there is ample space in the dissolving tank for brine storage. (The brine occupies the voids between the salt crystals.) This method of storing salt—with both dry salt and saturated brine present—is one form of "Wet Storage." It does away with the need for a brine-storage tank.

For storing any given amount of rock salt in dry form, ample space can be provided in the Silo portion, by building it to the proper height. The rugged steel, wood-stave, or prefabricated-concrete construction of the Silo assures long, dependable service.

Rehandling eliminated. Because dry salt stored in the Silo Lixator is dissolved to make brine, there is never any salt rehandling in the plant. A simple piping system, installed where it won't interfere with other operations, carries this brine to points of use. The brine is available simply at the turn of a valve. What's more, every drop of Lixate Brine is completely self-filtered by the rock-salt crystals at the bottom of the dissolving tank. Result: 100%-saturated brine which is always pure and crystal-clear.


Elevator
Rock salt storage capacity varied to suit customer requirements
Rock salt is stored automatically in silo
Reduces handling costs
Storage compartment uses wood stave or prefabricated concrete silo
Sterling Rock Salt
Hopper Car or Box Car
Removable cover plates over screw conveyer trough
Controls located adjacent to the dissolving chamber
Use hopper when unloading box car
SIDE ELEVATION

THIS IS A TYPICAL SILO LIXATOR . . . built outside a plant so that rock-salt storage is no problem. The unloading method with this Silo Lixator is a screw conveyor underneath a railroad car.

Incoming salt shipments need no special handling. One of the more common delivery methods is the one pictured above: rock salt flows directly from a hopper car into a screw-conveyor trough, which, in turn, carries the salt to a bucket elevator. Another unloading method, possible when the elevator boot is low enough to permit gravity feed from the hopper car, is the gravity-feed chute.

Another money-saving feature: the Silo Lixator needs to be cleaned out only once every 12 to 18 months. The clean-out process is very simple: a valve or door is opened at the bottom of the dissolving compartment. All accumulated impurities are flushed through the clean-out, and the Silo Lixator is ready for use . . . needs no further attention for at least another year.

TECHNICAL SERVICE WITH YOUR SALT

Through skilled and experienced "Salt Specialists," International can help you get greater efficiency and economy from the salt you use. International produces both Sterling Evaporated and Sterling Rock Salt in all types and sizes. And we also make automatic dissolvers in metal or plastic for both kinds of salt. So we can recommend the type and size of salt most perfectly suited to your needs.

If you'd like the assistance of an International "Salt Specialist" on any problem concerning salt or brine—or further information on the many Silo Lixator designs—just contact your nearest International sales office.

International Salt Co., Scranton, Penna.
Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; and Richmond, Va.

FOR INDUSTRY, FARM, AND THE HOME—
STERLING SALT
PRODUCT OF INTERNATIONAL SALT CO., INC.

For more information on product at left, circle 5377 see information request blank opposite last page.

Latest potato product developments were discussed during recent 8th annual **Potato Utilization Conference** at University of California (Berkeley). Speakers were (front row of photo): H. Findlen of Red River Valley Potato Research Center, E. Grand Forks, Minn.; A. D. Edgar of the same Center; J. L. Baxter, Jr., of H. C. Baxter & Bro., Hartland, Me.; George Carlin of Bell Brand Foods, Los Angeles; (back row) Walter Sparks of Idaho Ag. Expt. Station; R. V. Akeley, of Horticultural Crops Research Div., USDA, Beltsville, Md.; R. L. Sawyer, of Long Island Vegetable Research Farm, Riverhead, N.Y.; and W. Smith Greig, of Michigan State University, E. Lansing.

Mr. Carlin spoke on the disadvantages in using off-perfect potatoes for chipping, and indicated that it may be necessary to have grower contracts for special potato varieties. Mr. Baxter suggested that a definite processor grade be set up, rather than grading to fresh market specifications. Dr. Greig spoke on the need for time and motion studies in potato processing operations. In studies, he found lye peeling more efficient than using steam.

National Safety Congress, which meets in several Chicago hotels this month, will include a 200-booth exposition at the Conrad Hilton Hotel. Products, equipment, and services related to safety, health, first aid, and sanitation will be shown. Full details may be obtained from National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

G. W. Burry

George W. Burry, Burry Biscuit Co., Elizabeth, N. J., was re-elected president of the **Biscuit and Cracker Manufacturers' Assn.** at the 54th annual joint meeting of the B&CMA and the Independent Biscuit Manufacturers' Co., Inc.

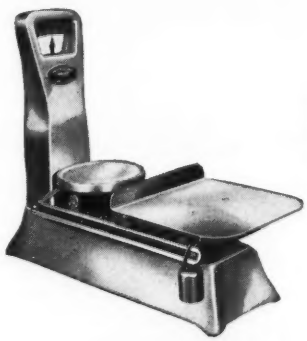
American Bakers Assn. annual convention this month will feature "long range planning". Sessions will be divided up according to the baker's operation — wholesale bread, wholesale cake, wholesale pie, multi-unit retail, home service, etc. Topics to be discussed include: "Money Isn't Everything", "Safety and the Man", "What are the Problems Relative to the Five-Day Delivery Week?", "Baker's Role in Civic Affairs", and "Training Programs for Future Progress". Advanced copies of complete program available from American Bakers Assn., 20 N. Wacker Dr., Chicago 6, Ill.

New Stanford Research Institute main building, Menlo Park, Calif., is under construction. This is the first phase of the Institute's new building program.

At Florida Frozen
Food Processors . . .

EXACT WEIGHT SCALES
assure top packing speed

Leading food packers, like Florida Frozen Food Processors of Miami, are finding the speed and accuracy needed for fast production packing in Exact Weight Scales. These precision scales are extremely sensitive to the finest degree for close weight tolerance, yet simple to operate and give dependable service. The easy-to-read dial of Model 273, above, provides 1 inch indicator travel equivalent to 2 ounces over or under established weight. Scales are specially anodized to resist corrosion. Write for complete details.



Exact Weight Scales are available in capacities for packaging units of any size or weight. Model 213, left, has 3-pound capacity with one inch indicator travel equivalent to one ounce over and under. There is a type and model available for almost every precision weighing job.

Sales and Service Coast to Coast

Find us in your local 'Yellow Pages'

THE EXACT WEIGHT SCALE CO.
909 W. FIFTH AVE., COLUMBUS 8, OHIO
In Canada: P.O. Box 179, Station S, Toronto 18, Ont.

Exact Weight SCALES

BETTER QUALITY CONTROL . . . BETTER COST CONTROL

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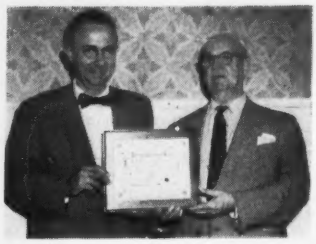


National Meat Canners Assn. has honored E. T. Clair, president of Republic Food Products Corp., Chicago, with a plaque recognizing his 60 years of service in the meat canning industry. Photo shows Dr. A. R. Miller, director of USDA Meat Inspection Div. (left), presenting the plaque to Mr. Clair.

Food Facilities Engineering is a new course offered in the School of Hotel Administration at Cornell University. This course will prepare students for work in the design and fabrication of food service facilities. Industry has recently recognized that this service is a type of engineering and requires college training. Instruction will be based on food production and equipment engineering courses offered at Cornell. One of the instructors will be J. Earle Stephens of Stephens-Bangs Associates, Inc., Detroit, whose firm has completed plans during the past year for several hospital and industry kitchen facilities running over $500,000 for each installation.

Michigan State University has elevated the packaging curriculum in the department of forest products to the status of School of Packaging. Dr. A. J. Panshin is in charge.

Dr. Roy Morse, food technology professor at Rutgers University, has been appointed chairman of the **Committee on Animal Products** of the advisory board, Quartermaster Research and Development. The board is appointed by the National Research Council of the National Academy of Sciences.

Here's what makes Bronze Valves

TYPICAL OF WALWORTH QUALITY is the union body-to-bonnet connection which stiffens the body against internal pressure; makes taking the valve apart a simple operation and reduces the chances of distortion or leakage even though the valve is repeatedly taken apart and reassembled. With this type of construction there is no possibility of the bonnet coming off the valve while the handwheel is being turned.

HEAVY BODY CONSTRUCTION is typical of *all* Walworth Bronze Valves. Extra-thick walls and rugged wrench hexes constitute a high safety factor and prevent distortion while the valve is being installed in the pipeline. Extra-deep pipe threads are accurately machined to eliminate leakage. Walworth Bronze Valves are also available with flanged, silver-brazed or soldered ends in certain sizes and types.

MEET THE CHAMP! The chief engineer of a midwestern plant had used a parade of valves in severe boiler blowdown service. Most didn't last longer than 60 days. None survived 90 days.

On the recommendation of a Walworth Representative the engineer installed the Walworth No. 225P Bronze Globe Valve shown here, stating that he would be entirely satisfied if it lasted a bare three months. Exactly 4 years and 362 days later the valve was taken out of service—not due to the wire drawing, steam cutting and galling which made the other valves short-lived—but because the highly turbulent steam finally wore a small hole in the body.

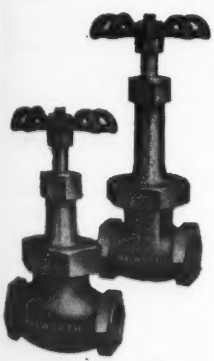
This is the kind of valve satisfaction you get—when you specify and use Walworth Bronze Valves. They are the longest wearing, toughest bronze valves on the market.

Walworth Subsidiaries: ALLOY STEEL PRODUCTS CO. • CONOFLOW CORPORATION • GROVE VALVE AND REGULATOR CO.

Walworth *the* real bargain!

EXTRA-LARGE STEMS with extra-long, extra-deep threads prolong valve life, protect against wear and distortion and provide tight positive shutoff. The surface of the stem is machined to a glass-like finish for minimum handwheel effort and to preserve the packing which results in fewer inspections and less maintenance. The top of the stem is tapered and squared to hold the handwheel securely.

TO REDUCE WIRE DRAWING to a minimum, certain types of bronze globe valves have stainless-steel plug-type seats and discs heat-treated to a nominal hardness of 500 Brinell, adding years to valve life even in severe services. These valves can be tightly closed on sand, grit or pipe scale without damage. Seats and discs are machined simultaneously, assuring perfect mating.



There is a Walworth Bronze Gate, Globe, Angle or Check Valve for every service. Walworth is continually developing new valve types and materials, including plastics, to keep pace with the growing variety and severity of services in modern industry. For full information, see your Walworth Distributor or write: *Walworth, 60 East 42nd Street, New York 17, N. Y.*

WALWORTH

Bronze Valves and Fittings

M & H VALVE & FITTINGS CO. • SOUTHWEST FABRICATING AND WELDING CO., INC. • WALWORTH COMPANY OF CANADA, LTD.

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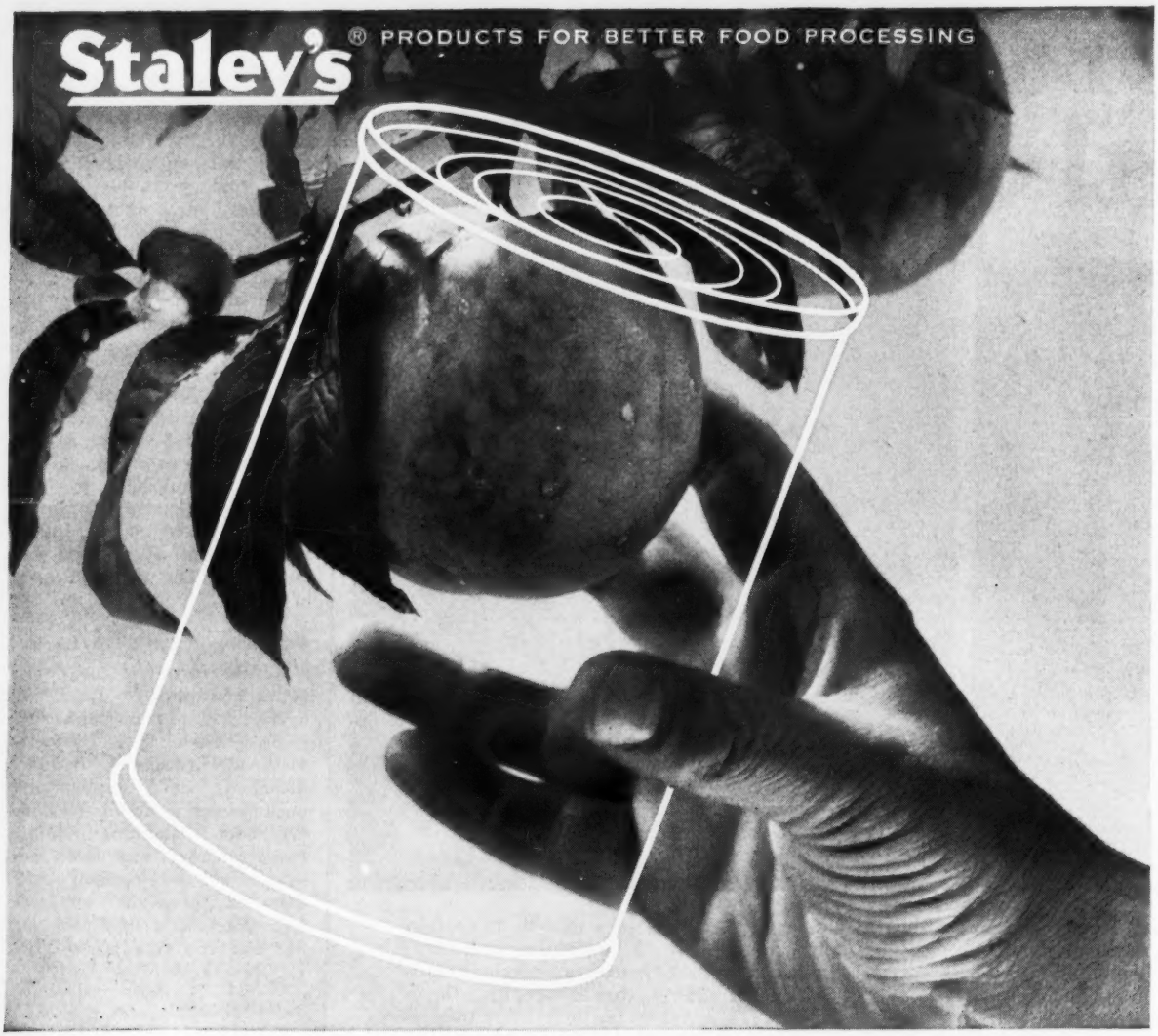
Food Technology Dept., University of California, offers the only university training in the nation in aseptic packing of fruits and vegetables. With this "new" process, foods are sterilized and cooled, then filled into sterilized and cooled glass or tin containers and sealed in a sterile atmosphere — all automatically.

Lloyd C. Mitchell, FDA research chemist, has been selected the first winner of the annual Harvey W. Wiley Award, established by the Assn. of Official Agricultural Chemists to honor the father of the original Pure Food and Drug Law. The award consists of $500.

Annual forum of the **Packaging Institute** is a three-day event with concurrent sessions. Those of special interest to food processors include: bleached board applications, package and equipment standardization, planning tomorrow's package, and latest research and development news. Detailed program available from Packaging Institute, Inc., 342 Madison Ave., New York 17, New York.

The "short course", to be held concurrently with the twelfth **National Industrial Packaging and Handling Exposition** late this month, is being arranged by Temple University. In the session on warehousing and space utilization, speakers will present the case for multi-story and single story buildings. Details on the 12 other sessions are available from the Exposition headquarters at 111 W. Jackson Blvd., Room 611, Chicago 4, Ill.

Food and Agriculture Organization (FAO) will hold a training course on fish handling, preservation, by-products utilization, and sanitation practices in Lima, Peru from October 21 to December 14. Additional information from Dr. W. F. Hampton, FAO Fisheries Division, Rome, Italy.



How to capture and hold natural fruit colors at their peak...*and keep them from "fading"*

Easy low cost way to give your brand that "fresh-picked" look —the kind Mrs. Consumer buys again and again and again

It's disheartening, isn't it? Disheartening to have those bright, mouth-watering colors of your highest grades—so eye-appealing when they were packed—become discolored by the time Mrs. Housewife serves them. And it's so unnecessary, too; thanks to Staley's Sweetose Enzyme Converted Corn Syrup.

For Sweetose holds maximum color . . . gives better gloss . . . retains the "sheen" that says *your product* was fresh picked. That's because Sweetose better protects the "natural pigments" in your red fruits . . . retards the oxidation of Vitamin C that causes "browning" . . . contributes other appetizing appearance factors as well.

Get *all* the facts. Learn how Sweetose and Staley's bulk handling system not only speeds production, cuts costs—improves flavor, body, quality—*but* steps up your sales by holding natural fruit colors. See your Staley Representative or write, wire or phone today.

A. E. Staley Mfg. Co., Decatur, Ill.

PRODUCTS FROM CORN Staley's AND SOYBEANS ®

OTHER QUALITY PRODUCTS
Regular & Intermediate Corn Syrups
Canners Starches
Refined Corn Oil
Zest®, Monosodium Glutamate
Sta-Sol® Lecithin

Sweetose® SYRUP

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conventions and exhibits

Oct. 8-10. International Assn. of Milk and Food Sanitarians, annual meeting, Brown Hotel, Louisville, Ky.

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Oct. 10-12. National Renderers Assn., annual convention, Hotel Statler, Los Angeles, California.

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For more information on product at right, circle 5381 . . . see information request blank opposite last page.

Magnetic ideas from ERIEZ

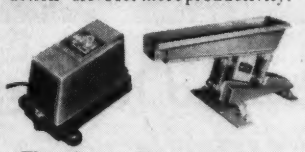
NO TIPPING ALLOWED! Here's one tip the waiter doesn't have to worry about . . . because the tray perched precariously over the edge of the table is held securely in place by a hidden Eriez Permanent Magnet. This idea of herculean strength and permanent dependability has found a practical use in industry, where Eriez HI-POWR Magnetic Separators are used in processing lines to remove dangerous tramp iron before it can cause fires, product contamination, machinery damage and downtime. Eriez HI-POWR Magnets are also used to control, convey and hold metals, from small parts to large pipes. In addition, Eriez produces HI-VI electro-permanent-magnetic vibratory feeders and bin vibrators. *All Eriez HI-POWR Magnets are non-electric, self-contained. They operate without wires or attachments. Magnetic power is guaranteed forever; the first cost is the only cost.*

ERIEZ PLATE MAGNETS HAVE POWERFUL PULL! Magnetic attraction pulls tramp iron from *moving flows up to 4" deep* . . . and holds caught metal securely! Economical Eriez Plate Magnets are quickly and easily installed . . . provide maximum efficiency with minimum cost. They work equally well with wet or dry materials, withstand temperatures to 850°F. Available in fully enclosed stationary or hinged models, for installation on wood or steel, in or above flowing lines. All sizes. Strong, riveted construction. Many powerful strengths; depth and rate of flow determine magnetic strength to be used. Magnetic power is guaranteed *forever!*

PULLEY PROTECTS PRODUCT PURITY! At the Libby food processing plant in Blue Island, Illinois, product purity is of prime importance. To prevent ferrous contamination of the processed food, an Eriez HI-POWR magnetic pulley was installed as the head pulley on a belt conveyor line that feeds tomatoes to the cooker. As the belt carries the tomatoes over the pulley, they fall into the cooker, while the tramp iron is held fast to the belt until it is automatically dropped out of the magnetic field. In addition to assuring a contamination-free product, the magnet has prevented machinery damage, and saves about 200 hours of down-time each season.

New! Eriez HI-VI VIBRATORY EQUIPMENT

First complete line of electro-permanent magnetic vibratory equipment operating at 3600 CPM directly off an AC line. No rectifier needed! . . . just plug in. Greater vibratory output with less power consumption. Less maintenance; lower installation costs. Permanently powered guaranteed Alnico V magnetic element (heart of the unit) produces an exclusive "double action" drive for more productivity.



Write for complete information on HI-VI Unit (bin) Vibrators to keep bulk materials flowing freely. HI-VI Vibratory Feeders for accurate, controlled feed.

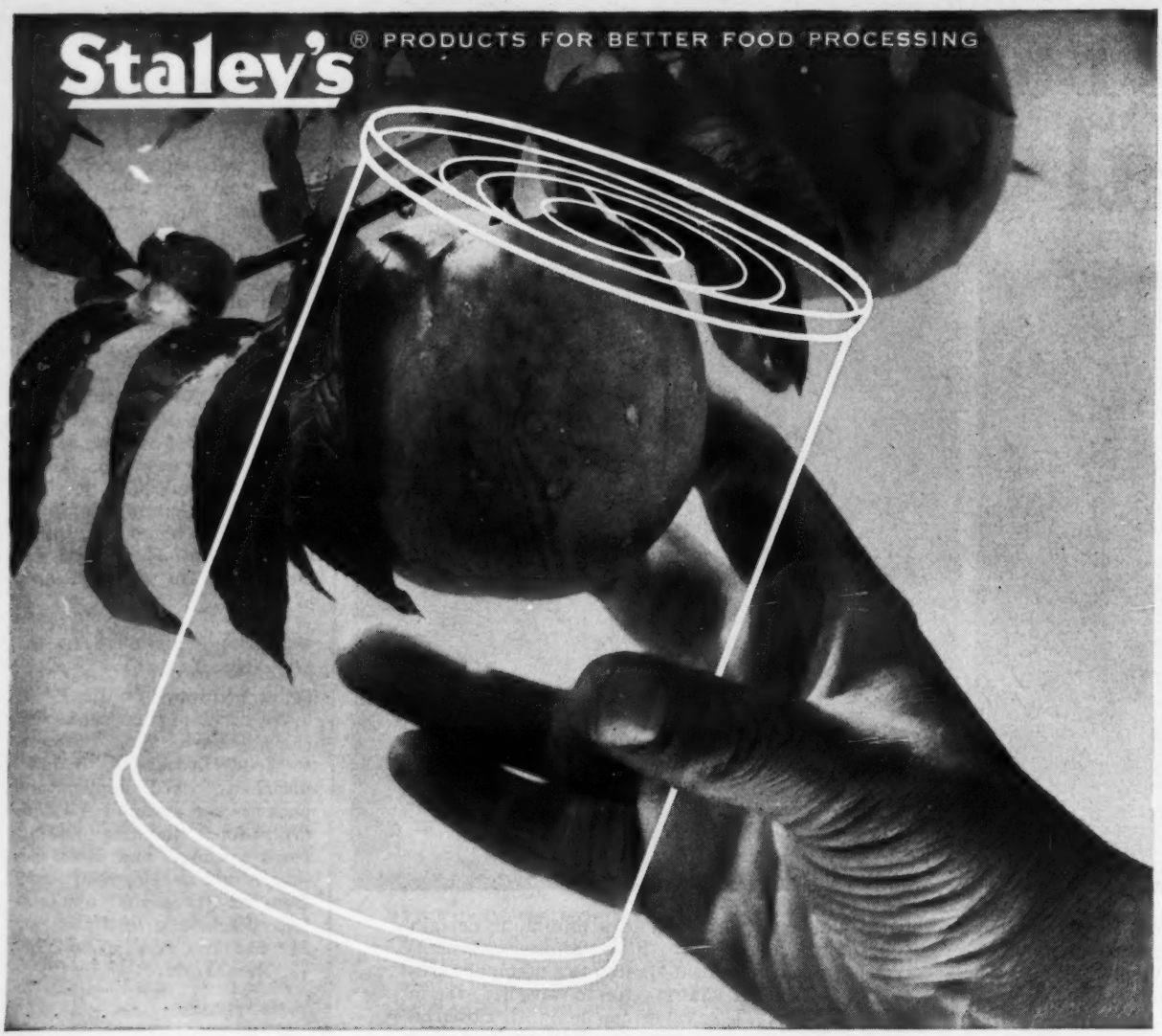
Patent Pending

ERIEZ HI-POWR MAGNETIC SEPARATORS

ERIEZ HI-VI VIBRATORY EQUIPMENT

DRAWER-GRATE MAGNET DRAWS GREAT PRAISE! To safeguard expensive precision equipment from tramp iron damage, the Toms River-Cincinnati Chemical Corp., manufacturer of vat dyes, installed a series of Eriez Magnets in their processing lines. One of these units is a stainless steel drawer type grate magnet, placed in the feed duct and hood of a micro-atomizer. Designed to remove stray metal from free-flowing lines, this unit has proved, according to company officials, "100% effective." It is daily trapping amounts of unwanted iron which could damage equipment and cause downtime. In addition to the enclosed grate magnet shown here, Eriez also makes a wing-type model for quick installation in open hoppers, bins, chutes, etc.

● *Eriez' free booklet "Magnetic Ideas" can help you. Send for it without obligation. ERIEZ MANUFACTURING COMPANY, 75-X Magnet Drive, Erie, Pa. OR on your specific request Eriez factory-trained field men backed by Eriez' laboratory and engineering know-how, will be happy to study your particular problem, make a plant survey and offer helpful "Magnetic Ideas."*



How to capture and hold natural fruit colors at their peak...*and keep them from "fading"*

Easy low cost way to give your brand that "fresh-picked" look —the kind Mrs. Consumer buys again and again and again

It's disheartening, isn't it? Disheartening to have those bright, mouth-watering colors of your highest grades—so eye-appealing when they were packed—become discolored by the time Mrs. Housewife serves them. And it's so unnecessary, too; thanks to Staley's Sweetose Enzyme Converted Corn Syrup.

For Sweetose holds maximum color . . . gives better gloss . . . retains the "sheen" that says *your product* was fresh picked. That's because Sweetose better protects the "natural pigments" in your red fruits . . . retards the oxidation of Vitamin C that causes "browning" . . . contributes other appetizing appearance factors as well.

Get *all* the facts. Learn how Sweetose and Staley's bulk handling system not only speeds production, cuts costs—improves flavor, body, quality—*but* steps up your sales by holding natural fruit colors. See your Staley Representative or write, wire or phone today.

A. E. Staley Mfg. Co., Decatur, Ill.

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This is *whipped* homogenized milk

You do it by incorporating a bit of *Myverol® Distilled Monoglycerides* with the milk and beating to a nice, dry, whipped dairy product. It works with other milk products, too. Anyone interested in the possibilities of creating dairy- or vegetable-based toppings with Myverol Distilled Monoglycerides should write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago, and Memphis • W. M. Gillies, Inc., Los Angeles, Portland, and San Francisco • Charles Albert Smith Limited, Montreal and Toronto.

distillers of monoglycerides made from natural fats and oils

Also . . . vitamins A and E . . . some 3600 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

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Refined Syrups & Sugars . . . pioneers in liquid sugar

It was just 30 years ago, in 1927, that Refined Syrups & Sugars started in business as the original pioneers of the liquid sugar system. The phenomenal success of this idea is history, as indicated by the more than 1,000,000 tons of liquid sugar consumed last year.

Liquid sugar has been an integral part of the change in a way of life that has seen the super market, prepared foods, and frozen foods become its symbols. Today, liquid sugar represents a thriving industry supplying well-known varieties of types and grades to users from coast to coast. Refinery after refinery has contributed its know-how to the technology of liquid sugar production, distribution, and use, so that food manufacturers can now look with confidence to many dependable sources of supply.

Following World War II, the trend toward liquid sugar use greatly accelerated. Seventy-five percent of Refined Syrups, present production is devoted to liquid sugar, and a $5,000,000 modernization and expansion program is well underway.

Frederick A. Davidson came to Refined Syrups & Sugars in 1940 as a representative of Coverdale & Colpitts, consulting engineers, during a period of transition when the company was converting from an old plant to new facilities. Pleased with his abilities, the company asked him to stay on as president.

OBJECTIVE: Quality

RESULT: New Forms of Sugar for Industrial Use

F. A. DAVIDSON
President
Refined Syrups & Sugars, Inc.

There is perhaps no one philosophy of doing business that affects a company or entire industry more than that which makes the attainment of quality, product improvement, and new product development its primary objective. It results in such a profound and energetic improvement in production and marketing that all levels of a company operation or industry, acting in unison, are bound to prosper from its results.

That the products of the food industry live up to the highest standards of quality has become almost axiomatic. This is the new order of business in which the supplier and customer find themselves bound ever closer together in common ties of endeavor to achieve the quality objectives.

For this reason, our company is forever curious about new ways in which research and improvements in sugar refining may contribute to food manufacturers' goals of producing and marketing more and better products.

There are important trends in the industrial use of sugar which emphasize the need for greater cooperation between sugar supplier and user. First, approximately 50 percent of sugar consumed today goes to industrial users, and this trend shows signs of accelerating rather than abating as more household chores are transferred from the kitchen to the production line. The second phase of this development, coincident with the manufacturer taking over the production of foods formerly prepared in the home, is the more critical demand for ingredients of quality-plus as industry applies the scientific approach to production. Closely allied with these trends is the spiralling use of liquid sugar among industrial users, which reached more than 1,000,000 tons, raw value, in 1956.

The latest and most advanced refining techniques are producing liquid sugars equal and superior in quality to granulated sugar. This development is viewed as one of the most important contributions to the improvement of sugar quality in recent years. And it was made possible only by years of painstaking research and the careful application of what was tested and proved in the laboratory.

Heretofore, it was not practical to market dextrose in liquid form because of its relatively low solubility. Now we have developed a way to overcome this limitation. Just last month, sucrose-dextrose liquid sugars (Sucrodex) were added to our regular line.

Experiments are now proceeding with a continuous process designed to make a new type of crystalline sugar which we call Multi-Sugars, from liquid sugars right in the food processors production line. The type of sugar produced in initial experiments has been found to have many advantages over conventional granulated sugars, and we are extremely confident that cooperative research will open the door to the production of new and novel products through the application of this new process.

These are only a few examples of what is being done through research to help the food industry in its progress toward producing and marketing more and better products.

Beginning on the next page, more information on the blend of sucrose-dextrose liquid sugars is presented by Daniel V. Wadsworth, vice president of Refined Syrups & Sugars, Inc.

New Approach To Use of Sugar

- **Sucrose-dextrose liquid sugars**
- **Multi-Sugars — new type of crystalline sugar**

Daniel V. Wadsworth's pioneering spirit as one of the original founders of Refined Syrups & Sugars was instrumental in changing the firm's operations from a molasses and refinery syrup blending plant to the liquid sugar production of today

DANIEL V. WADSWORTH
Vice President in Charge of New Product Development
Refined Syrups & Sugars, Inc.

Liquid sugar has been widely adopted by the food industry for several reasons. As a convenient form, it may be shipped by tank truck, stored in sanitary tanks, and moved through a plant by a piping system. This eliminates the need for hand labor to unload barrels or bags of crystalline sugar. In addition to convenience, liquid sugar acceptance has also been encouraged because of product quality, the fact that no waiting period is required for sugar to dissolve, and the ease with which temperature may be controlled when using the product. There is also the advantage that since no water is added to dissolve the sugar, impurities (dissolved solids) in available water supply are not added.

Although liquid sugar facilities may be present in a plant, relatively low solubility of dextrose have heretofore made it impractical to handle this sugar in liquid form. At room temperature (67°F) the solubility of dextrose is about 45%. Thus, such a relatively low concentration would not only require the handling of a lot of extra water, but spoilage would also become a problem.

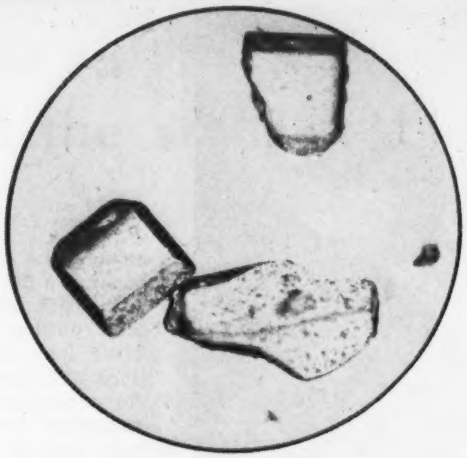
Therefore, if dextrose is desired, it must be purchased in bags and dissolved to form a syrup before use. Because of this "inconvenience" in handling another product, the advantages of combining dextrose with other sugars in foods has been neglected by many processors.

Yet, these advantages, such as the ability to adjust flavor and body to an optimum of sugar used in bottle syrup, preserves, fountain syrup, and canning operations, can often outweigh the "inconvenience". Similarly, there are advantages in baking—better fermentation, better crumb, more appealing crust, and as an aid in moisture retention.

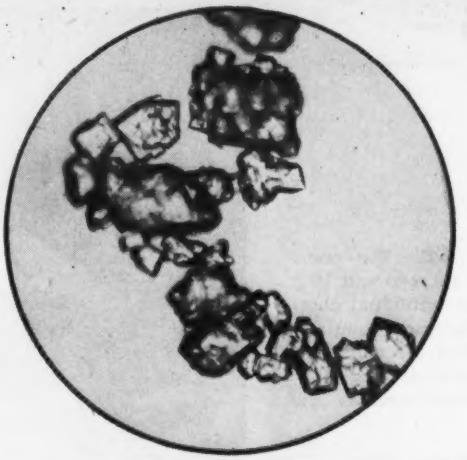
Dextrose mixed with sucrose (Sucrodex) is now shipped as liquid in tanks via truck, railroad, and motorship

Dextrose and sucrose combined become more soluble

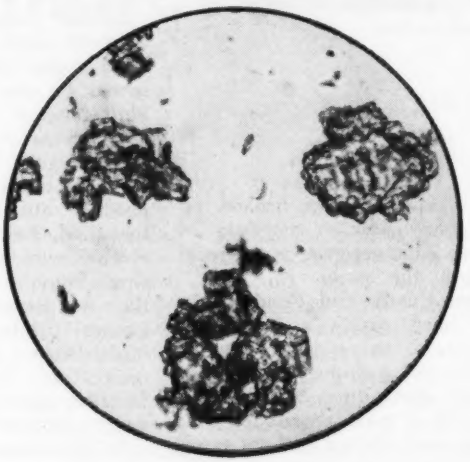
It is a well-known fact in laboratory data that when sucrose is added to a saturated solution of dextrose, the solubility of the combination is markedly increased over the solubility of either separately. In fact, the sugar solids content of a combination of sucrose and dextrose in solution is greater than the sugar solids contents of either sucrose or dextrose alone in solution. Thus, at 67°F, the sugar solids contents in a saturated solution of dextrose is only 45%, and for sucrose, only 67%. But, when one-third dextrose is combined with two-thirds sucrose, sugar solids content in saturated solution is increased to 72%.



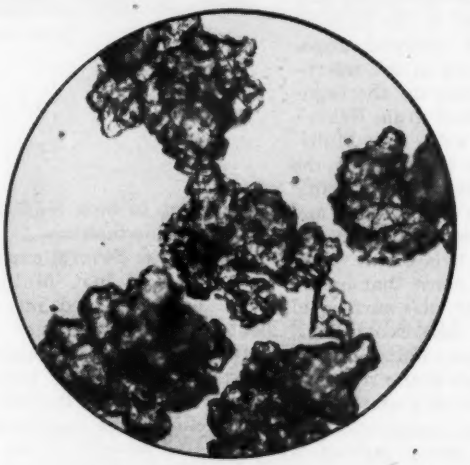
Granulated Sugar
Baker's Special (100X)



Multi-Sugar
principally sucrose (100X)



Multi-Sugar
sucrose-dextrose (100X)



Multi-Sugar
sucrose-invert (100X)

Four microphotographs above (magnified 100 times) compare granulated sugar — Baker's Special (upper left) — with three Multi-Sugars. Compared with Baker's Special, bulk (packed) volume per unit weight for Multi-Sugar composed principally of sucrose (upper right) is 1.31; for Multi-Sugar composed of sucrose and dextrose (lower left) is 1.46; and for Multi-Sugar composed of sucrose and invert (lower right) is 1.61

Heretofore, a hazard of contamination was encountered in the simple mixing operation which often resulted in bacterial growth and spoilage.

This process of mixing and pasteurizing the two sugars at Refined Syrups is termed "Comogenizing", and the final product is called Sucrodex. Four standard products are available in this mixture: 80-20 sucrose and dextrose, a combination of 80% sucrose and 20% dextrose solids, especially suited for bottlers seeking to bring out quality in more delicate flavors; 80-20 industrial sucrose and dextrose, a combination of 80% industrial sucrose and 20% dextrose solids, used in such food processing industries as cake baking, table and fountain syrups, and canning and preserving; 50-50 industrial sucrose and dextrose, an equal combination of industrial sucrose and dextrose, adaptable for wide application in multiple food uses; and 50-50 amber sucrose and dextrose, especially useful in baking bread since it speeds fermentation, gives better crumb, makes more appealing crust color, and aids in moisture retention. Besides these four standard products, other blends can be made according to specifications to fit individual requirements.

Multi-Sugars are a "new ingredient"

Greater use of liquid sugars by the food industry has been limited because of water content. The processing of certain foods requires that water content of liquid sugars be reduced and, in some cases, be completely eliminated to make the desired products. Overcoming these limitations has led to the exciting development of Multi-Sugars.

At this stage of the development, the limitations to obtaining dry sugar from liquid sugar in the user's plant requires that solid content of liquid sugar to be dried must contain a minimum of about 90% of sucrose or not more than about 10% of its solids in the form of other sugars. The 10% of other sugars may be all invert sugar solids, all dextrose, all lactose, all corn syrup, or a combination of these sugars.

The resulting product from reducing liquid sugar to dry sugar is radically different from that of granulated sugar. To characterize these sugars, they are called Crystalline Multi-Sugars. As the name implies, the crystals are aggregates, unlike granulated hard grain sugar. They contain multiple sugars — individual clusters composed of more than one sugar.

(*Continued on next page*)

SUGARS —

(*Continued from preceding page*)

Aerial view of plant also shown on cover

For example, with the combination of 90% sucrose and 10% invert sugar, the individual cluster contains sucrose, levulose, and dextrose. With the combination of 90% sucrose and 10% dextrose, it contains sucrose and dextrose.

How Multi-Sugars differ from granulated sugars

When concentrated and crystallized by customary refining processes, both sucrose and dextrose come down in the form of individual hard grained sugar crystals. Referring to the microphotographs comparing the regular granulated hard grain Baker's Special sugar with the Multi-Sugars, various qualities of the Multi-Sugars are depicted. While Multi-Sugar is not hard and rock-like, neither can it be described as soft; it is brittle. Note how the photos show that unlike hard grain sugar, the surface of Multi-Sugar is not smooth, but has jagged edges and is somewhat porous. This is the reason it goes into solution at a more rapid rate.

Although the major portion of Multi-Sugar clusters are estimated to be about the size of Baker's Special sugar crystals, using hard grain sugar terms, Multi-Sugar particle sizes range from extra fine down to 6-X powdered. Furthermore, Multi-Sugar can be disintegrated to powder fineness with much less power than required to reduce hard grain sugar to the same degree.

The cubic weight of Multi-Sugar is much less than that of hard grain sugar . . . that is, Multi-Sugar has greater bulk than hard grain sugar. Dry crystalline materials may be mixed with Multi-Sugars, encountering less stratification than when mixing the same dry materials with hard grain granulated sugars.

Product use for Multi-Sugars

The differences between hard granulated sugars and Multi-Sugars is so radical, that many possibilities for new products and process simplification may be opened up in both food and confectionery industries.

Chocolate: Several experiments have shown that Multi-Sugars may be introduced into factory batches of chocolate without grinding. The Multi-Sugar is incorporated directly with cocoa liquor and passed through a three roll refiner. The resulting chocolate is as smooth as the regular production of chocolate using hard grain sugar after powdering.

Icings: Multi-Sugar containing the combinations of sucrose and invert sugar, sucrose and dextrose sugar, sucrose and lactose sugar may be used without grinding to powder in almost all types of icings. A number of factory batches made resulted in icings with a smoothness equivalent to 6-X powdered sugar.

A possible explanation for the smoothness of icing made with Multi-Sugar may be offered. The individual clusters of Multi-Sugar, unlike hard grain sugar, are composed of more than one sugar. When the required amount of water is added to make an icing, the individual sugars go into solution in such proportions as to give a saturated solution of the mixture. If, as an example, a Multi-Sugar of sucrose and invert sugar is taken, the water dissolves the invert sugar and such an amount of the sucrose as is required for saturation of the liquid phase. The Multi-Sugar is thus disintegrated or broken up into many smaller crystals of sucrose which appear as the solid phase in the icing.

Hard Candy and Fondant: In both hard candy and fondant production, there would be no point in going all the way through to dry crystalline Multi-Sugar. There is a good possibility that the desired amount of corn syrup and liquid sugar can be automatically blended and then the moisture content of the combination reduced.

Marshmallow: Very little liquid sugar has been used, heretofore, in the production of marshmallow. Now however, that water can be removed easily and continuously, a liquid sugar/corn syrup mixture with low enough moisture content to make marshmallow is possible.

Cakes: Cakes made with Multi-Sugar show a darker crust color, which may be an advantage in some cakes. If darker crust color is not desirable, it may be controlled by lower oven heat. Multi-Sugar also gives a "silkier" crust, with crumb structure less harsh. There is also evidence of aiding moisture retention without the use of invert. There are only minor adjustments necessary when using Multi-Sugar, such as the change in pH.

Dry Mixes: Since its bulk density is greater than that of all other ingredients and it has a greater rate of solubility, Multi-Sugar is a natural for dry mixes.

No work whatsoever has been done putting Multi-Sugar into tablet form by pressure. Work along this line may make possible the production of a variety of confections with flavors that are more delicate and natural.

Multi-Sugars formed in continuous process

The procedure for reducing liquid sugar to dry sugar departs markedly from the process customarily used to produce granulated sugar. In only some respects do the characteristics of Multi-Sugars resemble old-fashioned transformed sugar. There is a sugar refinery in South America using batch methods to produce about 400 tons/day of so-called transformed sugar. The product which is composed of a single sugar — sucrose — is similar in some respects, but in general quite different from Multi-Sugars. The procedure for converting liquid sugar into Multi-Sugar at Refined Syrups is continuous and automatic.

In the process, liquid sugar is boiled rapidly in a matter of seconds to a temperature corresponding almost to moisture content desired. It is then spun and cooled to crystalline form with the desired moisture content.

When thinking of Multi-Sugars from an economic standpoint, it is suggested that minimum quantities of not less than 10,000 pounds per day be produced. If a sufficient demand arises, Refined Syrups may actually produce Multi-Sugars for food manufacturers.

The Multi-Sugar process is in the final stages of engineering, hence the detailed information for making this new form of sugar as well as for reducing the water content of liquid sugar is not ready for publication.

Samples of Multi-Sugars are available upon request by writing Refined Syrups & Sugars Inc., Yonkers 1, N.Y.

For more information on Sucrodex circle 5383 on Reader Service slip opposite last page.

An answer to FDA's Larrick on how to amend the standards law and thus . . .

UNSHACKLE

improvement of food products

MICHAEL F. MARKEL
Author of the Hale Amendment

The Editor has requested that I respond to the published comments on my proposed revision of the food standards law, following the publication of my views in the June issue of FOOD PROCESSING.

My proposal was, in essence, that suitable statutory amendments be considered which would provide for less restrictive food standards, since this appeared possible without jeopardy of those consumer interests, the protection of which was the legislative objective of the food standards law. This proposal was based on my considered judgment that (1) *food dilution* be prevented, when necessary, by food standards calculated to insure that objective; (2) *food safety* be assured by requiring demonstration of safety of a new and not generally-known ingredient before it is used, under statutory criteria and procedures enacted for that purpose; and (3) *deception in food marketing* be prevented by adequate enforcement of the misbranding and economic adulteration provisions included in the law for that purpose; all without the kind of overlapping in these areas which is the inevitable result of recipe type standards.

These are admittedly general statements as was the original discussion. Lack of specificity appears to be a criticism of several, although there appears to be general agreement in principle, with the exception of Commissioner Larrick.

There is little more to be added to the original paper which would make for greater specificity, without dissecting and analyzing existing standards in considerable detail. This is neither practical because of limitation of space, nor is it deemed necessary because those who have felt the rigidity and restraint of standards will have no difficulty in following the proposal and supporting arguments, while those who have not, will, in any case, have no more than an academic interest in the subject until such time when the full impact of present standards is experienced by them in their own sphere of interest.

It should suffice, therefore, merely to point out more specifically the kind of statutory amendment which the proposal contemplates. This requires but a simple clarifying statement. The principal response should, therefore, be directed to the points made in Commissioner Larrick's statement of opposition, since it appears to include all of the arguments against simplifica-

(*Continued on next page*)

FOR A MORE DYNAMIC FOOD INDUSTRY

Markel's proposal to simplify the standards law was circulated to industry leaders. While we did not contact each and every important executive in the food industry, we tried to reach a representative cross section.

Many have publicly endorsed Markel's proposal—see the list at top of page 33. We will continue to elicit views from the leaders of the industry. Thus far, none have been against Markel's proposal to simplify the standards of identity.

Some requested a more specific statement from Markel on just how the law should be amended, and that is the subject of the present article. This article is also an answer to the FDA's criticism, published in last month's issue of FOOD PROCESSING.

FOOD PROCESSING holds that the simplification of the standards as proposed by Markel will set the stage for more research and development, leading to more new and improved products, and thus a more dynamic food industry.

Howard P. Milleville
Editor

Industry leaders supporting the principle of Markel's proposal as published in the June issue of Food Processing

(*Continued from preceding page*)

tion of food standards which have ever been advanced.

Amendment required

The statutory amendment which the indicated proposal contemplates would be very simple. The basic amendment could be in the nature of an extension of the first sentence of the present Section 401(a) by merely indicating the kind of standards which the Secretary should promulgate "Whenever in the judgment of the Administrator such action will promote honesty and fair dealing in the interests of consumers . . ."; namely, standards calculated to prevent food dilution by fixing the required ingredients to insure identity and their minimum or maximum percentages to insure that economic integrity which consumers may reasonably expect under existing circumstances. It should not be hard to spell this concept out in understandable statutory language. All other amendments which such provisions might require would not call for any changes in substance, but only such changes as required to conform the remaining statutory language to the extension of the first sentence as indicated.

Under this proposal all optional ingredients which may, even under present standards, be added or omitted at the producer's personal and arbitrary choice, would retain precisely the same status, subject to one important exception. The producer would then be free to add these, subject only to such restrictions as may be imposed by other statutory provisions, violation of which would have to be established by the government to the satisfaction of a judge or jury the same as is now required in the case of adulterated or misbranded foods. Under the present law such ingredients can be added only by amendments of standards where compliance with such laws must first be demonstrated to the satisfaction of the Secretary.

Optional ingredients to be listed on label

However, since optional ingredients would then not be fixed by the standards they would be subject to the pertinent branding requirements of the law. This would mean that all added optional ingredients would have to be listed on the label. While some producers might find this objectionable, experience indicates that most would consider this as the lesser of the practical business and marketing problems. This change would, of course, be a definite plus from the consumer's standpoint, inasmuch as label statements may be desired by them.

Argument with FDA not a fight!

Commissioner Larrick's statement includes all of the arguments ever advanced against this proposal. These seem to us not really to come to grips with the basic issues implicit in our proposal.

His statement stresses lack of factual illustrations and, aside from the several burrs which need to be noted specifically as this response develops, objection to the proposal is basically vested on the contentions that (1) recipe type of standards are not unduly restrictive upon the regulated industry, and (2) such standards are necessary to insure adequate protection of consumer interests. Our response will therefore cover these points in detail.

It should be added, parenthetically, that this issue has been debated with FDA officials over many years, always in the spirit of mutual respect for each other's points of view, but, unfortunately so far, without agreement. This should be understood by the reader lest some statements of Commissioner Larrick, and our response to them be misunderstood. This is not a fight. It is a conscientious debate of two sides of a widely discussed question which has again become timely in view of the real likelihood of passage of a new food additive law. The job is to demonstrate that a statutory revision along the lines proposed will not sacrifice legitimate consumer interests. It is the Department's duty to insist on such proof. It is also its duty to weigh industry and consumer interests in the scale of reasonableness when considering demands of one group or the other.

It should be indicated at the outset that the Government has adopted a most liberal policy in dealing with certain classes of optional ingredients. Whenever possible, these have been specified in classes of ingredients rather than by listing each one. Thus it is provided in one of the earlier standards that the specified food "*may* be flavored or otherwise spiced" with "any natural food flavoring oil, oleoresin, or extract". Other foods *may* contain "harmless calcium salts", "*any* suitable, harmless food seasoning", etc. Such general provisions have been included as a matter of policy whenever deemed possible. But what do they fix or standardize? It seems that the very recognition of the need for such generality is a confession of impracticability of standards which fix each and every ingredient which may be used, whether it has any bearing on the *standard of identity* of such food or not.

Industry considers present standards a strait jacket

The FDA's statement appears to stress and take issue with the title to the article, with emphasis on the word "unshackle". It rejects the suggestion of undue restraint implicit in that word. The title was the Editor's contribution. The manuscript was not titled. However, considerable significance should be attached to the Editor's selection of title. We must assume that his reaction to the manuscript was that of many of his readers of a circulation which, I understand, is upwards of 37,000 in number and is made up of food technologists as well as administrative, production management, and technical and engineering executives.

That his selection of title is not far off beam becomes further evident from the published responses by industry leaders, as well as from reactions commonly expressed by food manufacturers when they encounter food standards. For example, I note Mr. William B. Stokely, Jr., Chairman of the Board of Stokely-Van Camp, Inc., uses the term "strait jacket". Many others have used this term to express a like reaction.

Whatever the title, the industry response to the article appears to bear out the fact that the regulated industry considers itself to be strait-jacketed more than is reasonably necessary for the adequate protection of those consumer interests which require protection by standards of identity for foods. The published letters are, in our opinion, representative of industry reaction generally. This, it seems to us, is an adequate negation of the suggestion that the recipe type of standards does not unduly restrain the regulated industry. The virtually unanimous agreement in principle with the proposal by outstanding industry leaders is the result of experience under the law over two decades.

CHARLES WESLEY DUNN, Food Law Specialist
FREDERICK W. SPECHT, Board Chairman and President — Armour & Company
GROVER D. TURNBOW, President — Foremost Dairies
SAMUEL A. McCAIN, General Counsel — Corn Products Refining Company
GEORGE GARNATZ, Director — Kroger Food Foundation
ROBERT S. WHITESIDE, President — Sterwin Chemicals, Inc.
CHARLES P. McCORMICK, Chairman of the Board — McCormick and Company, Inc.
NATHAN CUMMINGS, Chairman of the Board — Consolidated Foods Corporation
PAIGE LEHMAN, Vice President — Pillsbury Mills, Inc.
DR. BERNARD L. OSER, Director — Food Research Laboratories, Inc.
WM. B. STOKELY, JR., Chairman of the Board — Stokely-Van Camp, Inc.
C. L. GRIFFITH, President — The Griffith Laboratories, Inc.

It is suggested, however, that the complaints of undue restraint stem from the time when procedures were more formal and from the fact that it is necessary to resolve controversial issues of food safety at standards hearings. It is pointed out that the Hale amendment has served to eliminate unnecessary procedural red tape, and that adoption of a law requiring pretesting of safety of new food additives, which our proposal supposes, will eliminate consideration of questions of food safety from food standards hearings.

The value of the Hale amendment in saving time and expenses in securing amendments of food standards has been abundantly demonstrated since its enactment. There has not been sufficient experience in judging its practical operation in promulgating *new* standards. However, it should serve to shorten even such hearings considerably.

The elimination of questions of food safety from food standards hearings will, of course, go a long way to eliminate "the unwieldiness of present procedures" which it is suggested is the basis for our alleged "outcry against the basic principles of standards making".

Restrict standards to demonstrated public needs

However, our dared whisper for standards simplification is not rested on any degree of reduction of unwieldiness in procedure, but rather on the fundamental premise that regulation of any industry be restricted to a scope necessary to meet a demonstrated public need.

In defense of existing standards, Larrick states:

"We could not agree with him (Markel) that the law's fundamental requirement that food standards 'promote honesty and fair dealing in the interest of consumers' is to be given the restricted definition he characterizes as 'economic integrity'."

True! However, at this juncture the discussion no longer involves the meaning of statutory language and administrative authority under it. The Department's interpretation of the present law, and its authority to write the type of standards being promulgated, has received judicial approval. The present discussion centers on the question of a need for *revising* the law in a manner so as to confine the scope of regulation in the area of food standards to meet the demonstrated public need — *and no more!*

Consumer interests as determined by Congress

What are the consumer interests which the Congress felt needed protection by food standards? We thought our paper answered this, but apparently the argument was too general. Therefore, in the interest of continuity of argument and at the risk of repetition, the legislative history of the food standards law should be noted in somewhat greater detail.

The courts had said time and again, in interpreting various provisions of the 1906 act, that the purpose of that law was "to protect the consumers' health and pocket book". However, the administration of the law over a period of nearly three decades had revealed certain deficiencies which made it impossible to fully achieve this legislative objective. Steps were taken to remedy this situation by bringing the 1906 act abreast with commercial developments of the times.

The Federal Food, Drug & Cosmetics Act of 1938 was the result. While this title suggests a brand new law, it is a matter of most common knowledge that it, in fact, merely brought the 1906 act up to date, with such additions and deletions as experience in the practical enforcement of the old law had indicated as necessary for a more adequate protection of consumers' "health and pocket book".

We are here concerned only with the adulteration and misbranding provisions of the old law, and their revision as they relate to foods. These provisions of the old law paralleled those of the present law. Indeed, most of them were retained without change.

The economic adulteration provisions of the old law included the so-called "distinctive name proviso". This proviso exempted any food from the economic adulteration provisions of that law provided it was sold under its "own distinctive name". Thus, a highly diluted brand of preserve otherwise resembling what consumers generally regarded as a standard product in every respect — packaging, container, labeling — was rendered immune from the economic adulteration provisions of the old law by designating it "Bred-Spred".

The Government showed other examples of dilution of foods sold under their common or usual names which were out of reach of the old law, and the need for appropriate legislation to close this gap. The need for additional legislation to insure food safety was also urged upon the Congress.

The arguments in support of the food standards law were backed by examples of progressive food dilutions, such as the progressive decreasing, under competitive pressure, of the fruit and increasing of water in preserves; decreasing of chicken solids and increasing of water in chicken noodle soup; decreasing of fat and increasing of water in cheese; and other dilutions of a similar nature. It was demonstrated that, while consumers purchased some of such diluted foods at a little lower price than that of the standard foods, they nevertheless, accepted them as the standard products and, in fact, paid more for what they got than they would have paid had they purchased the higher priced standard products.

It was shown to the satisfaction of Congressional committees that the Government had attempted to achieve greater consumer protection against this kind of dishonest and unfair dealing by proving the existence of common law standards on a showing of long-established industry practices. However, the courts had declined to fix judicial standards in these areas on that basis. It was therefore successfully urged upon Congress that authority for promulgating administrative standards was necessary in order to protect consumers against the kind of dishonest and unfair practices as had been illustrated by specific examples of food dilution not reachable under the old law for lack of a yardstick having the force and effect of law. Such standards were necessary, it was argued, to insure honesty and fair dealing with consumers.

Not intended to help enforce other provisions of law

Debates and discussions of the proposed food standards law were extensive. Yet *no one* ever suggested that standards were necessary or even would be used to help enforce the *economic adulteration provisions* of the act —those relating to foods rendered deceptive by making them "appear better or of greater value" than they were, etc., or the mis-

(*Continued on next page*)

Unshackle food improvements

(*Continued from preceding page*)

branding provisions of the act. There was no suggestion that these laws needed revising. Hence no significant changes were made in these other than the inclusion of suitable authority to promulgate standards necessary to deal with the indicated food dilution problem.

Nor did anyone as much as intimate that a standard-making power was necessary for more adequate insurance of food safety. The need for additional legislation in this area was abundantly demonstrated and debated at considerable length. New provisions were finally adopted as representing a big step forward to insure food safety and as wholly adequate to accomplish this legislative objective, without even a suggestion that food standards would also implement them in cases where the necessary court proof to enforce them was lacking.

On the basis of showings as thus summarized, that part of the 1938 act generally referred to as the "Food Law" was amended in three basic respects; namely: (1) the distinctive name proviso was repealed; (2) the food standards law was added; and (3) new and greatly expanded adulteration provisions were included, calculated to insure food safety. Steps "(1)" and "(2)" were said to be necessary to prevent *food dilution,* and step "(3)" was considered adequate to insure food safety. No suggestion was heard that the economic adulteration provisions needed revising and they were not revised in fact beyond deletion of the distinctive name proviso.

No extended argument is deemed necessary to demonstrate that the recipe type of standards are *not* necessary to achieve the legislative objective of "(1)" and "(2)". A mere reference to the foods cited as examples before the Congressional committees will suffice to negate this suggestion.

Limit standards to mandatory requirements

As stated before for preserves, if the minimum ratio of fruit to saccharine ingredient is fixed in the mixture from which the preserve is made, and the minimum (fruit and saccharine) soluble solids is fixed in the final product (thus establishing the maximum moisture) then the standard cannot be violated by dilution.

The same is true of cheese. Once a floor is fixed for fat and a ceiling for moisture, that food can no longer be diluted without violation of the law. Indeed, one can take any one of the existing standards and demonstrate that the *required* ingredients of that standard, in the mandatory amounts, will serve to prevent dilution of that food. We can't possibly see how the point can be demonstrated with any greater particularity than by taking a standard, *any standard,* and testing its sufficiency to prevent food dilution on the basis of its mandatory provisions specifying the required ingredients and their ratio. Our proposal is that standardization be restricted accordingly. Any standard which does not include such mandatory provisions will fall short of the demonstrated statutory objective.

Fixing all ingredients not necessary for consumer protection

It is our contention that any standard which goes beyond fixing the required ingredients by establishing also a restricted list of a host of so-called "optional ingredients", which the manufacturer may use or not use as he chooses, is an extension beyond the scope of demonstrated need for consumer protection. Our proposal meant to include all of these optional ingredients and not only color and flavor, as the FDA's statement (published in last month's issue) appears to imply. The basic proposal of the article was that *all* of the host of so-called "optional ingredients" (80 some in the bread standard) which are not made mandatory by regulation and which may be used or omitted at the option of the producer, as well as any other in this category, be permitted to be used subject only to the adulteration and misbranding provisions of the act, the violation of which should be demonstrated by court proof to the satisfaction of a judge or jury.

A like choice cannot be left to producers with respect to ingredients which are *required* in order to insure a fixed standard of economic integrity. To do so would defeat the demonstrated statutory purpose since each producer would then be his own judge as to the reasonableness of a standard, thus leaving the situation as it existed before administrative standards were authorized. Therefore, the very fact that the present standards specify hosts of ingredients which are *not required,* but are used only at the option of the producer to achieve some technical, physical, or organoleptic objective, is, itself, an administrative admission that the ingredients in this category have nothing to do with the maintenance of the standard of economic integrity as fixed by the required ingredients.

Why then should processors be required to secure administrative listing of ingredients in a regulation to which they are not essential? The only answer anyone has been able to give and which is implicit in the FDA's critical statement (aside from the "consumer confusion" argument which will be dealt with later), is that this is necessary in order to insure that such use would not serve to violate other provisions of the act, or even other laws. Not the slightest attempt is made to justify this premise other than that the statutory language is said to be broad enough to cover it.

Enforcement of the laws in this backhanded way is really the administrative basis for insisting on freezing *all* ingredients of a standardized food, whether this be required to prevent food dilution or not, and is apparent from the Commissioner's statement as well as from those orders which have excluded certain ingredients.

To be concluded—

Next month, Markel will conclude his reply to the FDA's defense of recipe type food standards. He will demonstrate how the Administrator's policy of insisting on freezing **all** ingredients in standardized foods smacks of licensing contrary to the public interest.

FDA to require

. . . listing of ingredients on additional products

FDA has announced that food packers will be required to start listing ingredients on several additional food products hitherto exempt from labeling requirements. A year is being allowed to use up existing labels for the following categories of non-standardized food products: (1) canned clams, (2) fish roe, (3) shrimp, (4) lemon and orange extracts, (5) malted milk, (6) olives in brine, (7) sauerkraut, and (8) certain canned packs of fruits, berries, and vegetables.

Canned packs covered by the ruling include the principal ones for which standards have not yet been established. Listed by FDA officials were plums, blueberries, raspberries, blackberries, boysenberries, loganberries, red and white kidney beans, pumpkin and squash, eggplant, rhubarb, and bamboo shoots.

Exemptions continue for foods with standards underway

Exemption will be continued for frozen desserts, nonalcoholic carbonated beverages, and vanilla extract. Negotiations to arrive at standards for these products, officials pointed out, are currently underway.

FDA pointed out that certain food products were exempted from labeling requirements by the Food & Drug Act on the assumption that standards would eventually be worked out. Standards have been established for many of the exempted foods, but not all.

Non-standardized foods, except those specifically exempted must bear a complete list of ingredients, including additives. The law does not require all ingredients to appear on labels of standardized foods, FDA explains — although certain specified ingredients must be listed, such as artificial colors and flavors and chemical preservatives.

G. T. PECKHAM, JR.

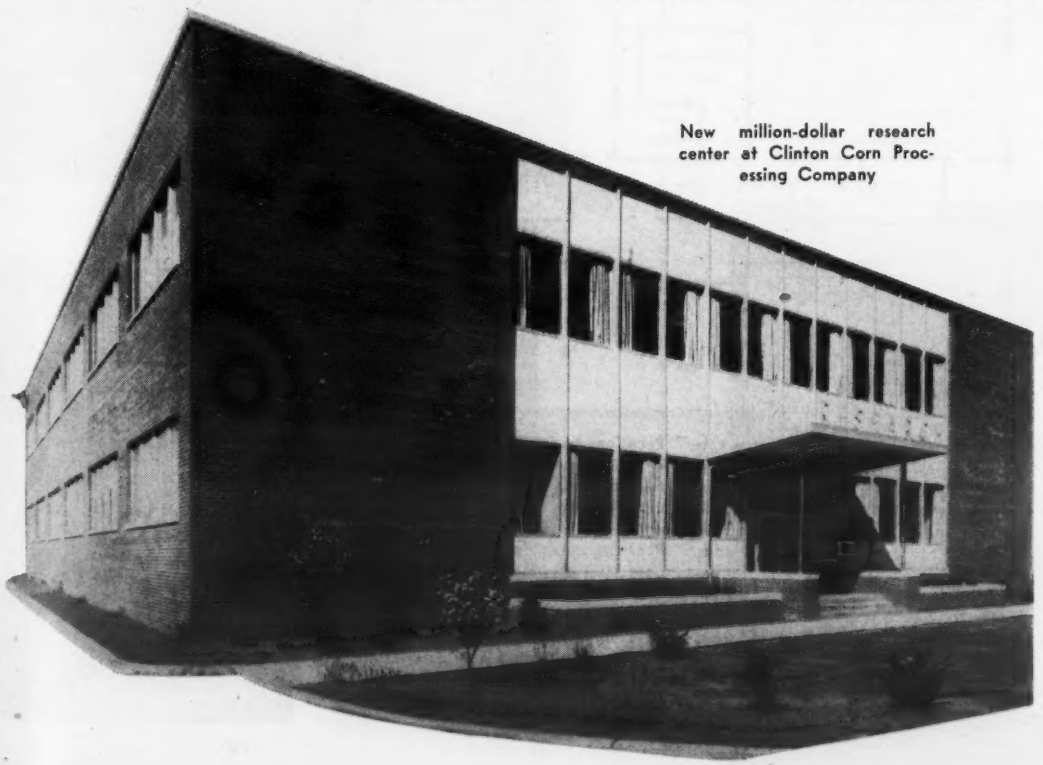
DR. J. M. NEWTON

Open working areas in research laboratory

- **establish ease of communication among research men**
- **insure even illumination, ventilation, and air conditioning**
- **save on construction, heating, and plumbing**

G. T. Peckham, Jr., Research Director, and
Dr. J. M. Newton, Technical Sales Service Director
Clinton Corn Processing Company

Clinton Corn Processing Company's new two-story research center at Clinton, Iowa, dedicated June 22, (see issue of Aug., '57, page 16) houses both the research and technical sales service department. The technical sales service department, aside from public and service areas, occupies about half of the first floor space. The balance of the building is divided into four major categories, each occupying a single large laboratory area. The four laboratories are used for (1) syrup and sugar research, (2) starch and dextrin research, (3) milling, by-product, and fermentation research, and (4) a development laboratory, or pilot plant.



New million-dollar research center at Clinton Corn Processing Company

Feature of the new research center is an open working area whereby, within a research group, no solid partitions divide one man's working area from another. This provides the feeling of "semi-private" laboratories and offices for research men, yet establishes the easy communication necessary to effective teamwork in attacking common research problems.

In addition to the teamwork advantage, the plan also offers considerable savings in building construction, laboratory floor space, heating, and plumbing, as well as insuring even illumination, ventilation, and air conditioning.

Arrangement and layout of the center involved years of study and planning. Numerous modern laboratories were viewed before plans were made final, making it possible to freely borrow good features, while avoiding mistakes.

Although design is basically functional, comfort and convenience have been carefully considered, making the center a pleasant place to work.

As shown in red on the diagram, laboratory benches form individual modules, providing space for several people to work conveniently in each area. There

(*Continued on next page*)

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are no doors or walls separating research working areas from the corridor. Acoustical ceilings decrease noise level and enhance the feeling of being in an individual laboratory. Fume hoods are located on the corridor ends of alternate benches, thus providing one adjacent to each aisle. The hoods are equipped with standard laboratory equipment for conducting necessary work which cannot be done at the regular bench. These hoods further create an impression of privacy between each working area.

Office space minimized

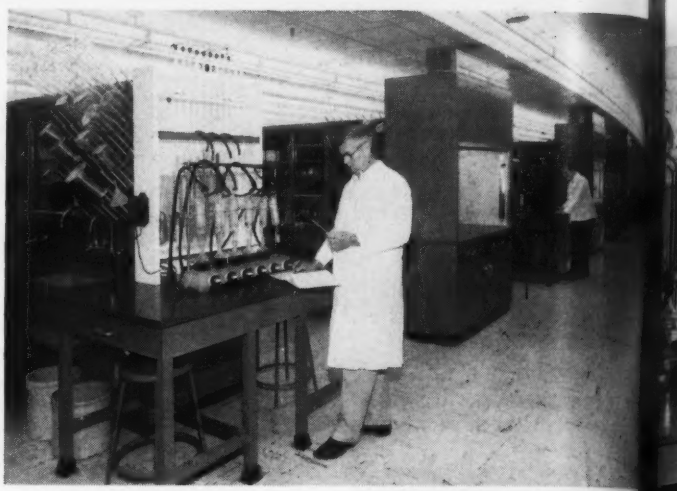
Minimizing office space, the layout provides each research man with a specially designed desk (also shown in red on the diagram) located next to the outer wall of his laboratory module. The position of these desks, in relation to each working area and to each other, further emphasizes how this over-all laboratory design encourages easy communication between scientists for cross-fertilization of ideas.

The research supervisors' offices, just off the corner of the large laboratory areas, also serve as conference rooms. The secretaries' desks are located in the center of the building in an enclosure. Entrances at either side of the enclosure permit easy access by scientists from any of the laboratory modules.

Dr. A. D. Campbell, assistant director of research, is in immediate charge of all research activity. Working under him, heading individual research groups, are Maurice A. Ewan, milling and by-product research; E. K. Crosby, starch and dextrin research; Robert G. Rohwer, sugar and syrup research; and Richard S. Duggleby, operating the pilot plant or development laboratory.

Technical sales service functions are under the direct supervision of the assistant director, E. K. Wardrip. The department is subdivided into these four sections: industrial field service, headed by G. B. Redmond; textile field service, directed by E. F. Patterson; industrial applications section, led by B. H. Landis; and engineering service, with C. H. Pelton supervising.

Spacious areas plus privacy offer pleasant working conditions



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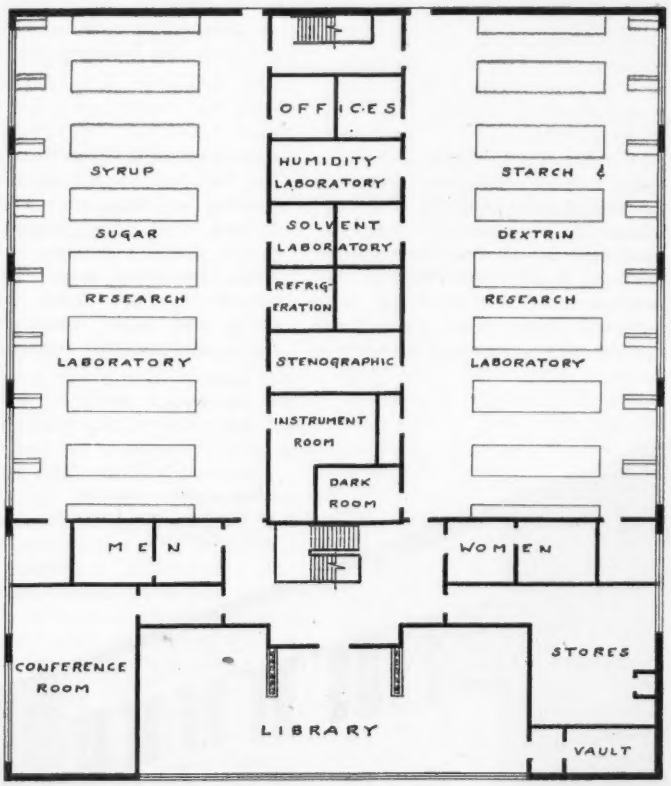


Second floor diagram of new research laboratory is for (1) syrup and sugar, and (2) starch and dextrin. Each research laboratory consists of a single long room divided into 10 x 40-foot areas on both sides, serving as small laboratories for individual scientists. Note how laboratory work benches are arranged along both sides without restricting walls. Areas are separated from each other with 7-foot partitions, warding off distractions, yet making neighboring aisles accessible for consultations. Partitions serve as reagent shelves located down the center of work tables. Photo I shows open area on corridor, as well as view looking down one module toward windows. Photo II shows open area along window wall at other end of benches. Center area houses supervisors' offices, stenographers' desks (photo III), humidity and solvent laboratories, and instrument and dark rooms. Library (photo IV), conference room, and room for stores occupy entire front of second floor.

I Modules, formed by laboratory benches shown in red on diagram, extend from window wall to open corridor. Fume hoods are located at end of alternate benches

II Desks with double book shelves (also shown in red on diagram), giving each man a "semi-private" office, are located along window wall area

III Stenographers' desks are located in room at center of building, with entrances from either side for easy access by scientists

IV Library, located at front of second floor, houses up-to-date reference works, scientific periodicals, and comprehensive files of patents and research findings

IV

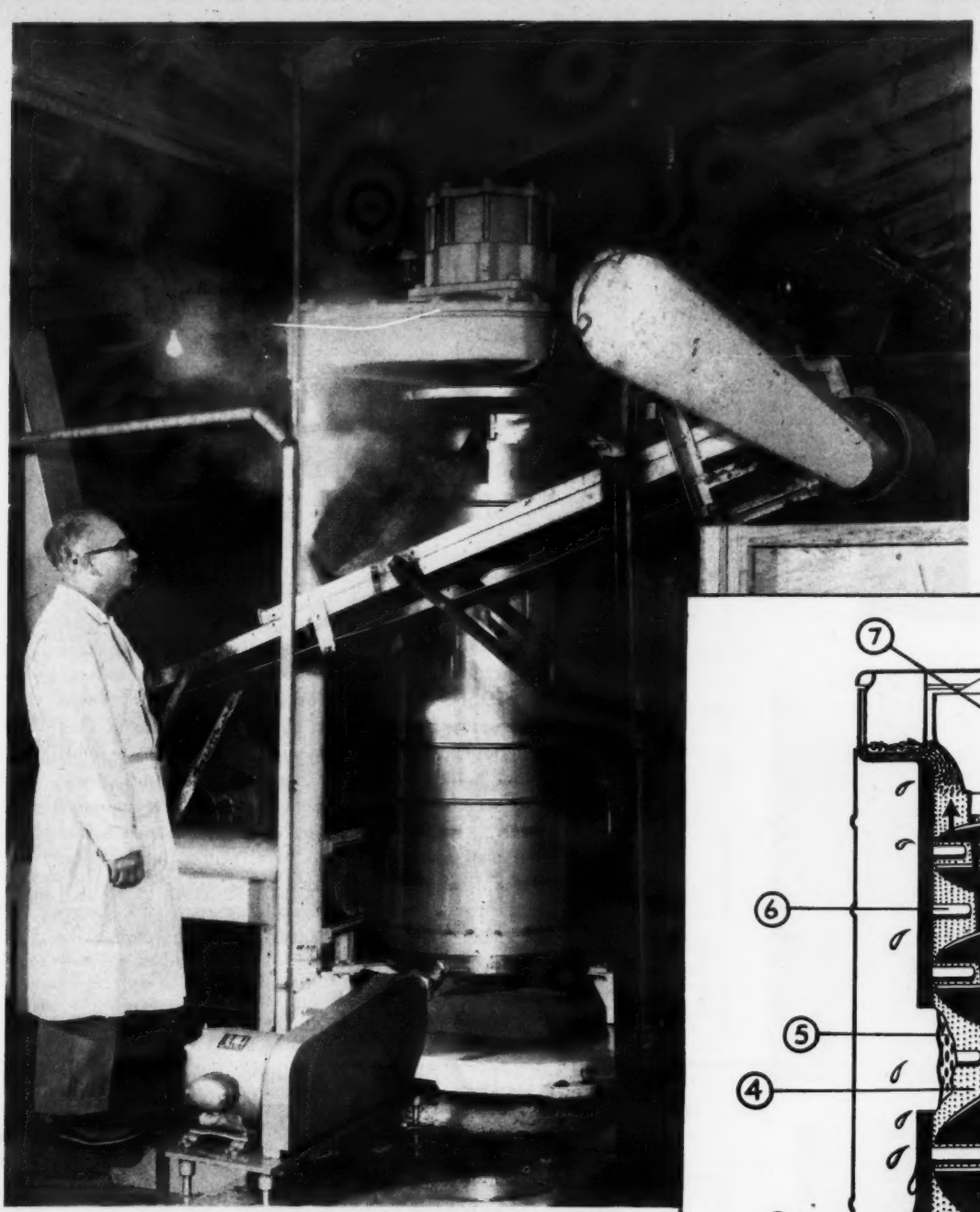
II

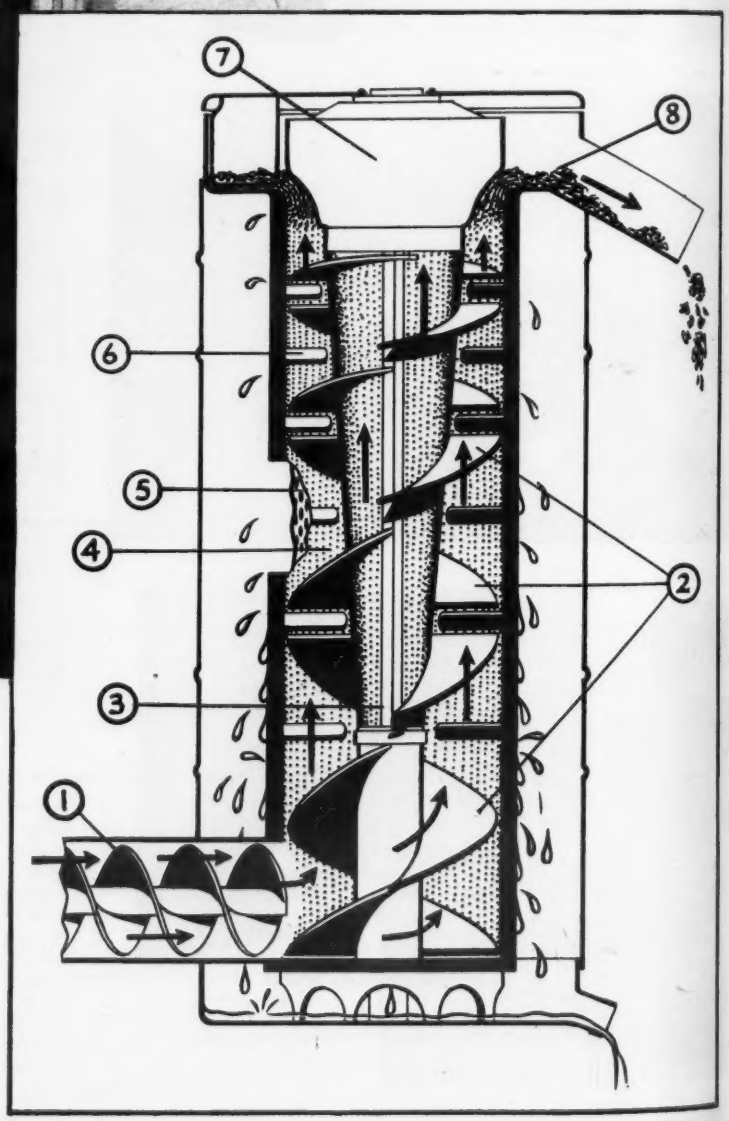
III

Open Working Area Also Feature of New Cargill Laboratories

Another open working area plan in laboratories is the new research center built by Cargill, Incorporated, in Wayzata, Minn. Unlike Clinton's open working area plan, where there is an open corridor at both ends of the laboratory bays, Cargill's laboratory bays extend from outer walls to an open corridor. Each bay has an island laboratory bench even with the corridor, extending about half way into the bay toward the outer wall. If, in the future, it becomes desirable to make smaller laboratories, the island benches can be continued to the outside wall and equipped with center-line reagent shelves similar to those which serve as partitions between the bays. Thus, the eleven laboratory bays, shown here, can be partitioned to form twice that number.

Putting
produces





Schematic drawing of the Vertical Screw Press shown in operation at Bercut-Richards in photo above. It was developed primarily for the food processing industry, and has many sanitary design features. All product areas may be opened for thorough cleaning. Stainless steel is used in all product contact parts. Filter screens are held in place by pressure, rather than by screws, which allows faster cleaning and maintenance.

Pomace is pressure-fed into the cylinder by feed screw (1). Screw flights (2), mounted in quandrants by one quick-opening clamp to a hollow centered spindle (3), travel pomace upward into increasingly restricted area. Effluent discharges through screens on hollow spindle (3) screens and also through outer screens (4), which are framed and hinged for accessibility to machine interior. Cutaway (5), shows section of backing screen that supports filter screens. (Screens on center spindle are similarly arranged). Breaker bars (6), agitate and break up pomace for maximum recovery. Pressure cone (7), is adjustable to meet product requirements. Press cake (8), is formed and discharged at top of machine.

the squeeze on tomato waste $28/hr more juice at Bercut-Richards

Vertical screw press designed on counter-flow principle may also be applied to extraction of juice from various other vegetable and fruit products

ROBERT G. BEVERLY
Chief Application Engineer
Food Machinery and Chemical Corporation
Canning Machinery Division (Western)
As reported by **KARL ROBE**
Associate Editor

When pomace from tomato juice operations is hauled away (at an expense to the processor), it may still contain edible juice. However, extracting more "squeezable" juice has not been economical before.

Experience at Bercut-Richards Packing Co., Sacramento, Calif., during '56 tomato season, shows that 200,000 gal of tomato juice can be recovered from 2500 tons of pomace under regular production conditions with two new vertical screw presses.

Bercut-Richards was the first tomato packer to install this screw press, beginning with a test installation of a pilot model in 1955. Because of its success, two production units were placed in the line for the following year's operations. The 200,000 gal of recovered juice in 1956 season, figured at $0.19 per gal, yielded a gross profit of $38,000. Data on juice that can be recovered from pomace at various moisture levels is given in the accompanying graph.

In addition, wet waste disposal tonnage was reduced by some 860 tons. Hauling costs rated at $5/ton gave gross savings of $43,000. The total doesn't even include Bercut-Richards' ultimate refinement of the operation — the kiln drying and sale of 1640 tons of dewatered pomace for livestock feed.

The vertical screw press works on a counter-flow principle. Pomace enters press at bottom, is squeezed upward by screw spindle. Juice pressed out from the pulp cascades downward and cannot rewet the dry pomace discharged from top of press. Details of this vertical screw press, which has sanitary design features, are given in the diagram.

Loss of product through "channeling" is also prevented by conveying the pomace upward against gravity, forming the press cake at the top of the machine. (Channeling is the sudden loss of press cake at the discharge outlet, which allows escape of unpressed pomace.)

The counter-flow principle also permits handling of a wetter material and permits forming of an initial press cake at the discharge orifice without difficulty.

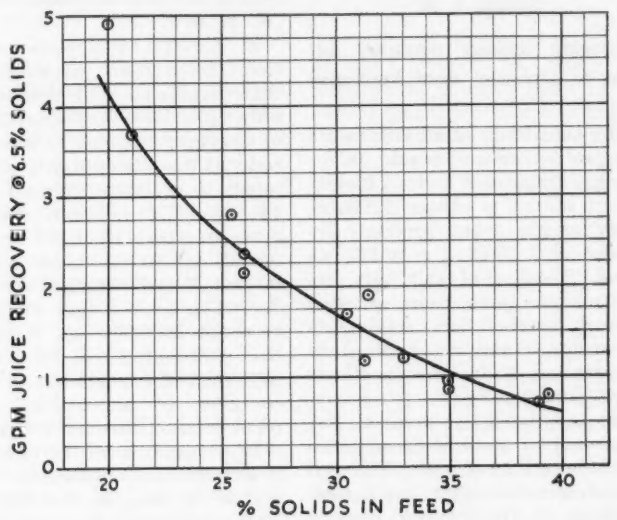
An additional savings inherent in using the vertical screw press arises from reduced maintenance cost on pulpers, finishers, and juice extractors. With a screw press in the line, the processor can loosen the pulper or extractor pressure settings and thus reduce screen failures, production stoppages to make repairs, and upkeep maintenance, with the assurance that the recovery of the additional juice from the wetter pomace will be made in the vertical screw press.

In addition to tomato pomace, the vertical screw press may be applied to the extraction of juice from pineapple, prune pulp, limed-citrus, carrots, and other food products.

The "Counter-flow" vertical screw press is development of Food Machinery and Chemical Corp., Canning Machinery Div., P. O. Box 1120, San Jose 8, Calif., and Hoopeston, Ill.

For more information circle 5583 on Reader Service Slip.

Tomato Juice Recovery Vs Total Solids of Pomace

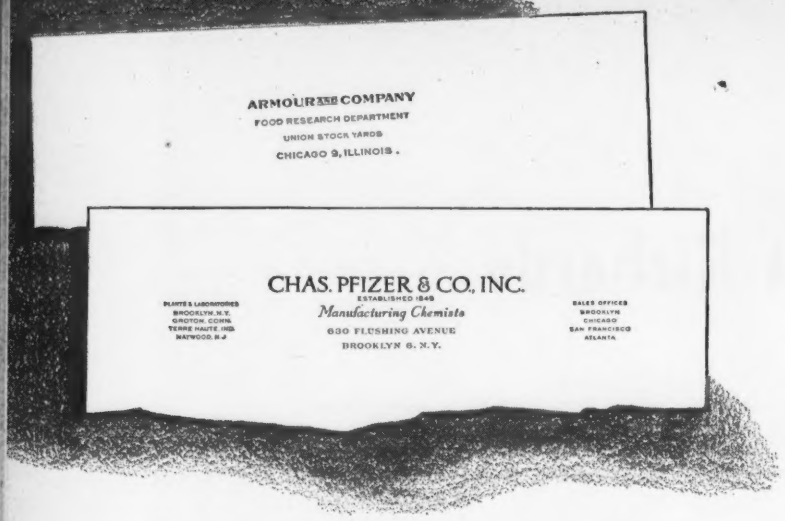


Graph summarizes data gathered during 1956 tests. If a canner knows the solids content of the pomace in his operation, he can readily determine from the performance curve approximately what additional juice he can recover.

Thus, studies conducted in 31 California tomato canneries showed that solids content in pomace being discharged from pulpers ranged from 20%-35%, with an average of 27% solids (73% moisture). Average additional juice recovery for pomace of 27% solids therefore would be 2.2 gpm. This represents an increase in total plant juice yield of approximately 2% for a plant running 25-30 tons/hr (which is optimum capacity for maximum yield from one press) to a juice extracting operation.

Operating under this capacity load, it was found the press will discharge tomato pomace at 40% to 45% solids, regardless of whether the solids content of the product entering the press was 20% to 35%.

Deviations from curves are due to variations in "squeezable juice content" of the pomace, as determined by a portable hydraulic press. The average solids content of pomace as it is discharged by pulpers and/or extractors is measured by a moisture meter.



RADIATION PRESERVATION

With the presentation of the letters on these pages, FOOD PROCESSING brings to 16 the number of informed appraisals of accomplishments and future prospects in the field of food preservation by ionizing radiation. As additional letters become available, they will appear in future issues as part of this series

Armour and Company

Chicago 9, Ill.

Precooking appears necessary adjunct to successful meat irradiation

The sensitivity of certain meats to radiation-induced flavor changes imposes a serious handicap on efforts to obtain commercially sterile meat products by means of ionizing radiations alone. Because of this, our investigations have been directed toward combination treatments in which irradiation is used in conjunction with other methods of preservation.

One approach has involved the treatment of meat with an antibiotic before irradiation, followed by refrigeration after irradiation. A dose of 100,000 rep from a gamma source applied to ground beef containing 2 ppm of added chlortetracycline resulted in a four-fold increase in shelf life at 40°F. Irradiation alone at the same level was of insignificant benefit, and the effect of antibiotic alone was to approximately double shelf life, so it seems reasonable to conclude that a combination of the two acts in a synergistic fashion. A higher radiation dose (400,000 rep) was less effective because it inactivated much of the antibiotic; also, distinct flavor changes were noted in beef receiving this dose.

In similar experimentation with poultry, the antibiotic added nothing to the preservation effect obtained from irradiation. A radiation dose of 400,000 rep did not produce appreciable flavor changes and this dose gave more than a ten-fold extension in shelf life at 40°F.

In another approach, meat items have been precooked and then irradiated. This method not only provides heat-inactivation of enzymes but also substantially reduces the susceptibility of some meats to radiation induced flavor changes. For example, radiation doses in excess of 50,000 rep produced detectable flavor changes in raw, but no changes were observed in cooked beef which had received 2,000,000 rep. It appears that precooking will be a necessary part of any process designed to give an acceptable, sterile meat product through irradiation.

Investigations of combined treatments are continuing.

It is our opinion that commercial applications for the use of ionizing radiations in meat preservation eventually will be developed, but not without a great deal more research and development work. Pilot plant facilities such as are being planned for Lathrop, California, by the Quartermaster Command will be of great help in expediting commercial development. We would estimate the first practical application of radiation preservation in the meat industry to be approximately five years away.

Clarence K. Wiesman

CLARENCE K. WIESMAN
TECHNICAL DIRECTOR, FOOD DIVISIONS

Chas. Pfizer & Co., Inc.

Brooklyn 6, N. Y.

Antibiotic pretreatment of irradiated foods offers promising possibilities

Two of the most important scientific developments of our modern era, antibiotics and atomic energy, have each found very important potential application in the field of food preservation. With the discovery of antibiotics, nontoxic compounds became available, which in extremely minute quantities (<10 ppm) can more than double the storage life of a perishable food. As a development of the peaceful applications of atomic energy, the use of ionizing radiations has offered a means of destroying microorganisms in foods without the application of heat. The combination of these two new preservation methods has received little scientific attention but appears to offer promising possibilities. For instance, it has been shown in meats that the tetracycline antibiotics having a wide spectrum of activity are very effective against the Gram-positive bacteria which are resistant to irradiation.

The broad-spectrum antibiotics at the levels used in foods are bacteriostatic, while ionizing radiations act by decreasing the number of microorganisms already present in the food. In combining the two methods, a food treated with antibiotic as early as possible, would reach the radiation source with a lower bacterial count and be superior in quality to a nontreated food. In addition, the radiation dose required to produce a certain preservative effect would be lower, which in turn, would result in a lessening of the adverse organoleptic changes associated with high levels of irradiation.

In foods, the tetracycline antibiotics are not appreciably destroyed at radio-pasteurization dosages and would thus offer protection during subsequent storage.

Alex S. Malaspina

DR. ALEX S. MALASPINA
DEVELOPMENT SECTION

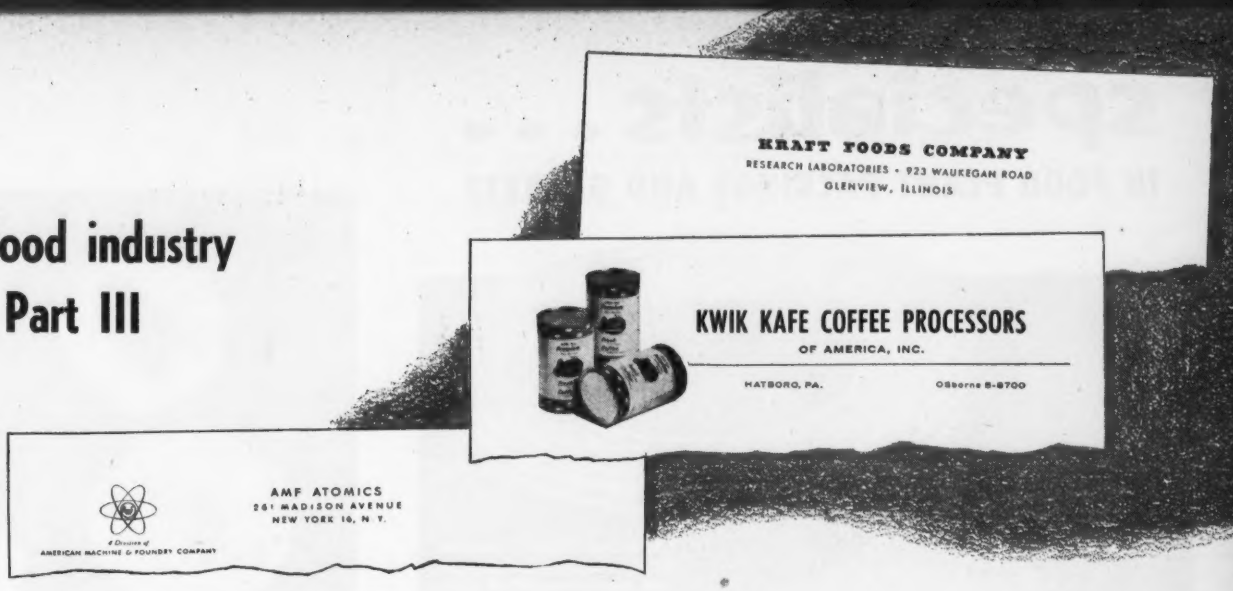
Kraft Foods Company Research Laboratories

Glenview, Ill.

Off-flavors at high dosages . . . incomplete protection at lower levels

No advantage of irradiation of pineapple chunks has been demonstrated. At sterilizing irradiation levels, off-flavors are very objectionable. Even at 100,000 rep, tasters prefer the non-irradiated control when the pack is fresh, although this preference fades as samples age. And at 100,000 rep, the amount of microbial kill is not sufficient to provide appreciable protection or extension of shelf life. Fruit salad, a mixture of grapefruit, orange, and pineapple, when irradiated, shows the same objec-

an appraisal by food industry research experts Part III



tionable off-flavors at high dosages of irradiation and the same incomplete protection at lower levels.

Work has now been initiated to determine effectiveness in these fresh fruits of various known methods of reducing irradiation off-flavors. First trails using sodium ascorbate as an "acceptor" were not encouraging.

Stanley M. Osri

STANLEY M. OSRI
RESEARCH LABORATORIES

Kwik Kafe' Coffee Processors of America, Inc.

Hatboro, Pa.

Slight flavor change, good shelf life noted in irradiated coffee concentrate

We have in a preliminary way exposed some of our coffee concentrate to gamma rays at the Argonne National Laboratories in Lemont, Illinois, and Dugway, Utah. The purpose of these experiments is to find a way to preserve the delicate flavor and aroma in coffee which until now can only be retained for any length of time by freezing. Our first experiment showed enough promise of success to investigate the application of radiation further. We now have samples of coffee concentrate that were exposed to various dosages of irradiation from 50,000 rep up to 2,000,000 rep. Some of these samples were treated at 10°F, 45°F, and 70°F.

While there is a slight flavor change from the irradiation, it seems that the shelf life is good. At this time, we believe that there is no spoilage of the product which normally would occur on storing at room temperature.

All of our observations are preliminary, and considerable investigation will be necessary before we can be sure that this method of preservation is applicable to our coffee concentrate.

F. R. Greenbaum

DR. F. R. GREENBAUM
RESEARCH CHEMIST

AMF Atomics

New York 16, N. Y.

Potato irradiation ready neither for commercial acceptance testing nor for scrap heap

The early work on inhibition of the sprouting of tubers through the use of gamma irradiation was interesting, but inconclusive. The laboratory experiments of Sparrow, Sawyer, Brownell and others showed that gamma doses in the range of 8,000-200,000 r and subsequent cold storage (40-50°F) are sufficient to inhibit sprout formation for 15 months. Observed weight losses in this interval were only 20 percent, and softening was sharply reduced. Taste tests showed that there were no adverse flavors in the irradiated tubers. By the end of May, 1955, almost all of the published data indicated that this process was ready to emerge from the laboratory to be tested on a commercial scale. All the radiation scientists and food technologists who had investigated the phenomenon supported this view, and the QM Food & Container Institute indicated its willingness to lend support to such a commercial acceptance program.

In September, 1955, a joint industry-government group was organized under the leadership of AMF Atomics Division of American Machine & Foundry Company to investigate commercial feasibility of the process. In addition to the QM Food & Container Institute for the Armed Forces and AMF, other participants are: Bangor & Aroostook Railroad Company; J. R. Simplot Company, Boise, Idaho; Miller's Pre-Pared Potato Company, Chicago, Illinois; H. C. Baxter & Bros., Corrinna, Maine; Tater State Frozen Foods, Washburn, Maine; Maine Potato Tax Commission; Maine Department of Agriculture; Idaho Potato Processors Association. Indirectly participating also were the Office of U.S. Surgeon-General and the U.S. Atomic Energy Commission.

The participating potato processing companies were to perform standard commercial tests on the potatoes, and the QM was to provide irradiation services and sponsor a feeding program employing the test potatoes. The Agricultural Experiment Station at the University of Maine was engaged to conduct most of the experimental work and to supervise the storage and distribution of the potatoes. Over-all program coordination was supplied by AMF Atomics.

In January, 1956, approximately 70,000 pounds of a variety of potatoes were shipped under commercial conditions to the National Reactor Testing Station, Arco, Idaho, where quantities of each variety were irradiated in a special rig at the Materials Testing Reactor, to radiation specifications established by the QM. The potatoes, including controls, were then shipped to commercial storage facilities at Fort Fairfield, Maine, in cars provided by the Bangor & Aroostook Railroad Company.

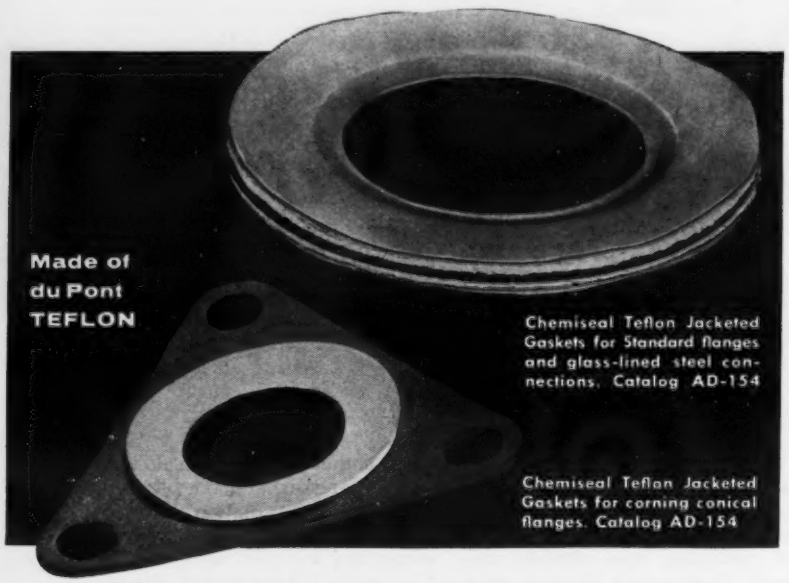
Two-fold failure to date

Now, after a year, it has become apparent that the radiation process employed has failed in two major respects. First, the irradiated potatoes do not show an increase in storage life over the controls. Although sprouting was inhibited, the irradiated potatoes showed a high incidence of rot so that the loss rate, if anything, exceeded that of the controls. Secondly, commercial products made from the irradiated tubers that did not rot ex-

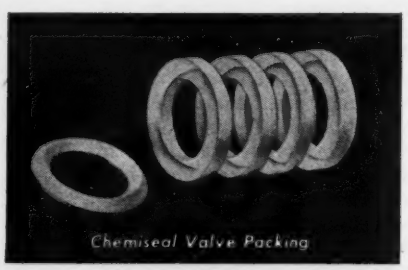
(*Continued on page* 46)

specialists . . .

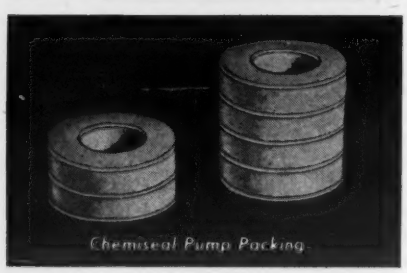
IN FOOD PLANT PACKINGS AND GASKETS


Made of
du Pont
TEFLON
Chemiseal Teflon Jacketed Gaskets for Standard flanges and glass-lined steel connections. Catalog AD-154
Chemiseal Teflon Jacketed Gaskets for corning conical flanges. Catalog AD-154

Chemiseal Packings and Gaskets were designed by specialists for corrosion, contamination and sanitation problems in the food and chemical industries. Designed of chemically inert TEFLON, du Pont's wonder plastic that laughs at food acids, alkalis, solvents—that withstands sterilizing temperatures—that is extremely anti-hesive—Chemiseal Packing and Gaskets are fast replacing other types throughout the food industry.



CHEMISEAL TEFLON-JACKETED GASKETS are available in any size, with a variety of filler materials suitable for glass, glass-lined, porcelain-lined and metal piping equipment. These fillers are protected on both faces and the inside diameter by the inert TEFLON Jacket. Catalog No. AD-154.



CHEMISEAL V-TYPE PACKING is the ideal valve packing that seals with low gland pressures and operating torque. Extremely resilient, tough and anti-hesive—it will not seize the valve stem or shaft even when handling the most difficult solutions. Supplied in sets with square end adapters. Catalog No. AD-155.

CHEMISEAL PUMP PACKING is extremely effective for rotating and reciprocating shafts. Provides a low friction 2-way seal that not only prevents axial seepage, but also seals against shaft and stuffiing box as well. Supplied in sets to meet specific requirements. Catalog No. AD-155.

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Camden 1, New Jersey

United States Gasket *Plastics Division*
OF THE GARLOCK PACKING COMPANY

5384 on Reader Service Slip

Peeled peach halves pre-rinsed in 5% special phosphate solution (lower row) have cleaner pit nests and grade higher than control halves (upper row)

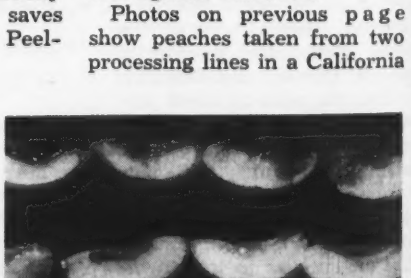
New approach to control fruit browning

Pre-rinse with phosphate formulation increases yield with peaches, reduces amount of caustic used

Preliminary in-plant experiments last season with peaches indicate that browning of cut and peeled fruit surfaces can be reduced by addition of a specialized phosphate compound to the wash water just prior to lye peeling. Addition of the phosphate compound, which contains buffering agents against fruit acids, and CMC (carboxy methyl cellulose), saves amount of caustic used. Peeling losses are reduced.

Action on fruit surface promotes better and faster rinsing; caustic doesn't "bite" into peach surface as deeply as before, and rinses freely, thus allowing more caustic to drain back into peeler before discharge of fruit from peeling machine. CMC also aids in tempering the caustic action on fruit flesh and protects surface against oxidation.

Photos on previous page show peaches taken from two processing lines in a California



Peach slices in top row received commercial wash and lye-peeling operations. Greater yields were possible when peaches (bottom row) were treated in water containing phosphate

plant. These peaches were held about 20 minutes before photos were taken. During that time, the peaches from the line to which phosphate compound had been added to wash showed no apparent browning. Peaches from line with no added compound showed considerable browning around the pit, and a shriveling of the peeled surface.

In tests made under supervision of plant chemist in another California plant, the compound was added to a peach processing line at 10 a.m. By 2:30 that afternoon, fruit recovery rate had risen by 12%. Plant personnel said that fruit lots were in the same condition in both cases, based on observation. Condition of peeled surfaces was also observed to have improved—firmer fruit, reduced peeling loss—after addition of the phosphate formulation.

Improving pepper peeling

In lye-peeling of peppers, accepted commerical practice is to maintain a 20 to 26% caustic concentration. Results from initial commercial-scale experiments revealed that by adding new phosphate compound, only 12 to 16% caustic concentration was needed. Today, processors are using this lower concentration and adding the phosphate at 10% of the dry weight of the caustic. They report producing a cleaner, smoother, and more firmly finished pepper.

Due to slow solubility of some of the basic chemicals in the new compound, its manufacturer does not recommend use of automatic dispensing. In small operations where a concentrated solution of the compound can be made up in sufficient quantity, solution can be metered through automatic or drip method systems. Some firms are operating under the latter systems.

Uniflex compound is product of Wyandotte Chemicals Corp., Wyandotte, Mich., and Los Nietos, Calif.

For more information circle 5385 on Reader Service Slip.

THE BIG DIFFERENCE IN SPRAY DRIED FLAVORS IS RIGHT HERE

Spray dried, locked in flavors
are nothing more than tiny globules
of concentrated flavor encased in an outer
protective coating which shields it from oxidation,
evaporation and the reaction with other ingredients
which it might contact.
The superiority of FRITZSCHE'S AROMALOK* FLAVORS
is due simply to the fact
that *this core or nucleus is composed of*
the very finest flavoring ingredients made.

AROMALOK*

FLAVORS for use in:

While spray dried flavors are a trifle costlier
than their liquid equivalents,
they offer advantages in certain applications
which can more than offset this difference.
Assured indefinite shelf life and protected
against flavor loss during manufacture
the tendency toward costly overflavoring
is thus avoided. Furthermore,
spray dried flavors are easy to handle and store.
They mix readily and will not separate in the
finished product. They are highly recommended
for use in all powdered products
where flavor retention is a prime consideration.

SOFT DRINK POWDERS
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PUDDING POWDERS
CAKE MIXES
ICING MIXES
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MILK DRINK POWDERS
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PHARMACEUTICAL TABLETS
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AROMALOK* FLAVOR
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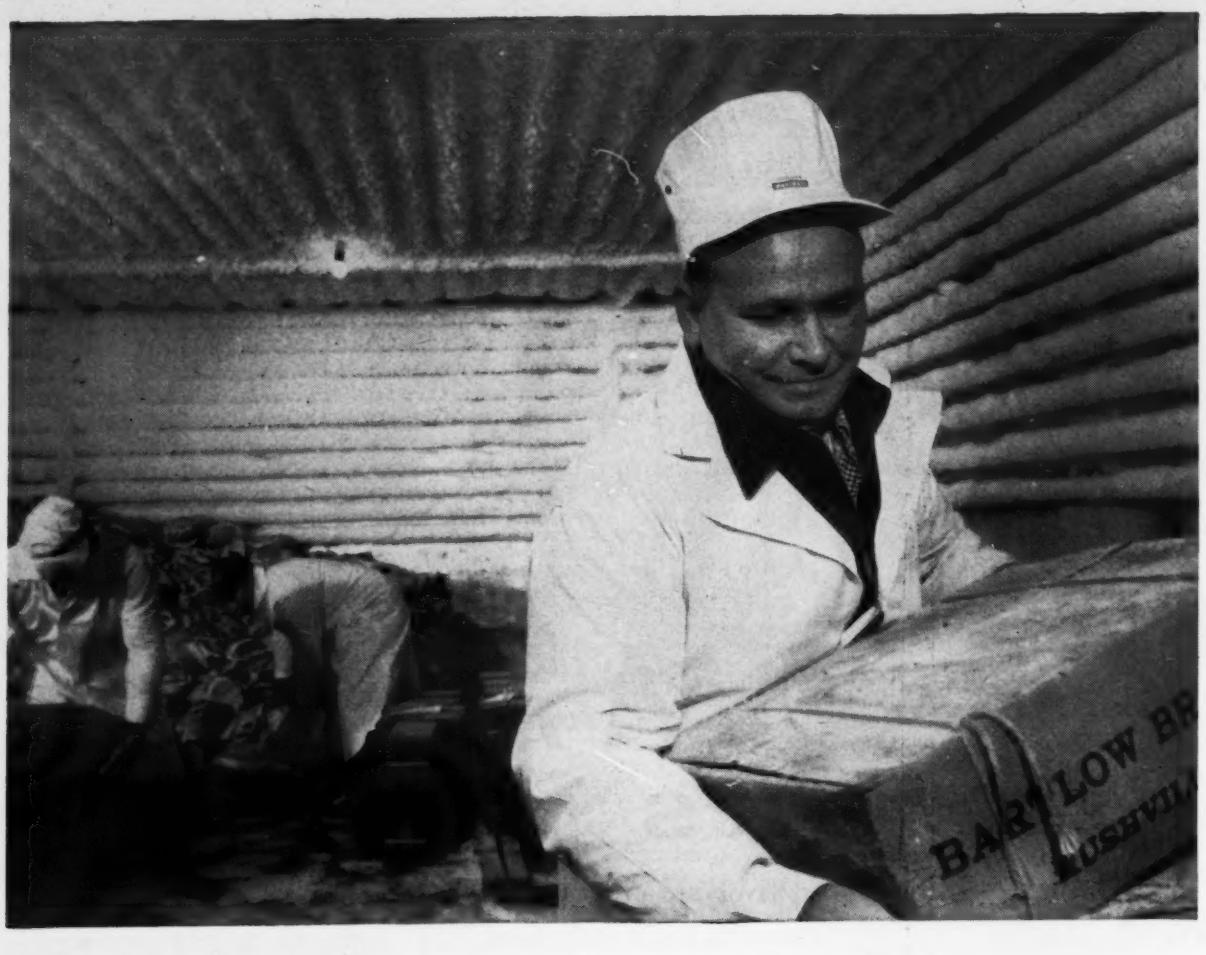


After eleven years' use, Illinois meat packer testifies to permanent efficiency of Styrofoam® insulation

Bartlow Brothers, an Illinois meat packing firm, has used 100,000 board feet of Styrofoam (a Dow plastic foam). In 1946 approximately 80,000 board feet were installed. In 1955, another 20,000 feet were specified for a new addition! They have used it in ceilings, walls and floors in several storage rooms, including the utility freezer shown above.

After eleven years' experience, Bartlow prefers Styrofoam because of its lifetime low "K" factor and its unyielding resistance to water and moisture. As for its over-all insulating efficiency, one Bartlow spokesman put it this way: ". . . we have noted that over a week end, when the doors are not being constantly opened . . . our smallest machine, a 6′ x 6′ Frick, will keep the entire building at temperature."

For more information about the many advantages of Styrofoam, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. PL1715F-2.

CHECK THIS EXCLUSIVE COMBINATION OF PROPERTIES

STYROFOAM* FIRST IN PLASTIC FOAM INSULATION	Insulations	Low "K" factor	Superior water resistance	High compressive strength	Light weight	Superior resistance to rot and vermin	Easy handling and fabrication	Low-cost installation	Lowest cost per year service
	STYROFOAM	•	•	•	•	•	•	•	•
	A		•	•		•			
	B	•			•			•	
	C	•		•					

*Styrofoam is a registered trade mark of The Dow Chemical Company

YOU CAN DEPEND ON DOW

5387 on Reader Service Slip

Radiation Letters

(*Continued from page 43*)

hibited an unacceptable appearance, and their flavor, although not unpleasant was slightly different from that of fresh unirradiated potatoes.

Although our evidence is not conclusive, we believe we can trace the rot problem to an adverse radiation effect on the healing rate of wounded potatoes. Irradiated potatoes bruised in normal commercial handling form a protective skin, or periderm, more slowly than unirradiated tubers. Consequently, they face increased exposure to attack by molds and bacteria. At the time the program was formulated, this effect was believed to be unimportant. The only published data indicated that both unirradiated potatoes and potatoes irradiated with doses up to 12,000 formed a good wound periderm in three days at high temperature and humidity conditions. During the discussion period at a Brookhaven conference on potato irradiation held in May, 1955, there was a brief disclosure of a significant decrease in the rate of periderm formation for potatoes treated with doses of 20,000 r. However, the detailed results were not generally available until the test potatoes had received their QM-specified doses of 0, 15,000-22,000 r, and 30,000-44,000 rep. Furthermore, the evidence of difficulties at 20,000 rep was only of a preliminary nature, so that even if presented in complete detail, it would probably have aroused little interest.

The undesirable flavor and appearance effects observed by the processors were also unexpected at the 15,000-22,000 r dose level. Careful examination of the evidence available in the Fall of 1955 indicates that there were at least some signs of possible difficulty. Sawyer reported experiments on blackening of potatoes before and after cooking; although up to 12,000 rep had no noticeable effects on before-cooking blackening, "there was a slight tendency for irradiated tubers to blacken worse than check tubbers" after cooking. No flavor dif-

ferences were detected. Once again the data were fragmentary, but, because of the potential importance, Sawyer suggested that "more work be done along this line". Apparently the experts specifying the dose conditions for the commercial acceptance program gave them little weight.

As a result of this commercial acceptance program, it has been demonstrated that there are several factors requiring further laboratory study. Based on recommendations, the QM has undertaken additional research. Independently, AMF is also pursuing research.

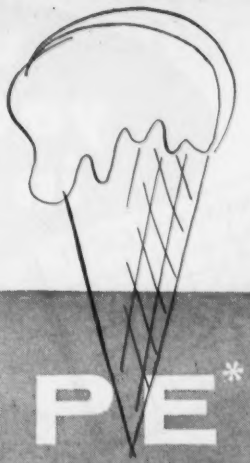
The AMF contract with the QM is still in effect and two more tasks remain to be accomplished, the processor tests and the economic study.

Possibilities of a new approach

Although the results obtained have not been encouraging, the results do not reflect adversely on the value of such a program. This joint commercial evaluation program was early established as not a mere formality but rather a real test to see whether the preservation effect observed in the laboratory could be used with profit on an industrial scale. Consequently, the possibility of encountering the difficulties observed was known to all. Even more important is the fact that the process, though not ready for commercial acceptance testing, is also not ready for the scrap heap. Indeed, it still shows considerable promise. There is evidence that adequate sprout inhibition can be achieved with dose levels less than 50 percent of those employed in this commercial acceptance program. The use of lower doses would probably result in better flavor and appearance and a decrease in incidence of rot; in addition, the economics would be more favorable.

W. E. Chamberlain

W. E. Chamberlain
PROJECTS DIRECTOR



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Vanitrope... a pure, vanilla-like flavoring, 25 times stronger than vanillin, yet saving you up to 50% in flavor costs, is ideal for vanilla ice cream, as well as being especially effective in intensifying such flavors as chocolate, butter, coffee, fruit, and nut.

Vanillin... of the very highest quality, Shulton Vanillin, U.S.P., is controlled throughout its manufacture to rigid flavor standards, and is highly recommended for quality ice creams.

Vanitrope & Vanillin... the finest vanilla-type flavor ingredients you can buy, work well together, or alone, and can be easily incorporated into your ice cream formulas.

Technical bulletins, samples, and additional information, on request.

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FINE CHEMICALS DIVISION
SHULTON, INC.
ROCKEFELLER CENTER
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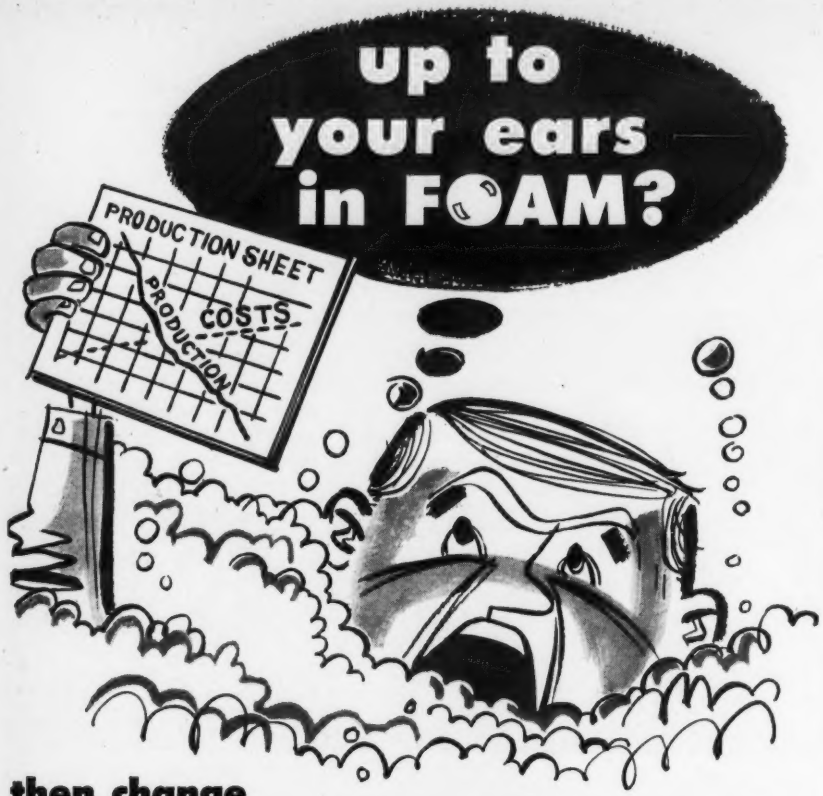

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Why continue to let foam rob you of valuable processing space, inflate your costs, smother your production schedule? Why indeed, when only a teaspoonful of a Dow Corning SILICONE DEFOAMER will prevent mountains of that wasteful foam . . . help you operate at full capacity.

Now there are two Dow Corning SILICONE DEFOAMERS for food processors—both so efficient they pay for themselves many times over:

ANTIFOAM A Compound—permissible to use in processing nonstandardized foods at concentrations up to 10 ppm.

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And remember, when you use one of these economical silicone defoamers, you also free yourself from the worry and mess of unsanitary boilovers and the extra maintenance costs that result. So—stop choking on your FOAM problems—change to a Dow Corning SILICONE DEFOAMER.

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Put Dow Corning SILICONE DEFOAMERS to the test. Use the coupon below or write on your letterhead to receive a free trial sample. No obligation, of course.

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CITY _____ ZONE _____ STATE _____

My foamer is

Oil system _____

Aqueous system _____

Other _____

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Member of Armour's testing staff is shown emulsifying sample of meat fat with skim milk in portable lab homogenizer

Bland meat fat has excellent fla

Devise simple method to determine what fats are suitable for frozen dessert formulas

M. E. HULL, Research Chemist
Armour & Company and
ERNEST NORDLINGER
Assistant Editor

A bland neutral flavor is a determining factor in indicating the suitability of a fat to be included in mellorine or non-butterfat frozen desserts. Armour scientists have a relatively simple taste-test to measure the flavor characteristics of fats. This test makes it practical to include meat fats in frozen desserts.

The development is part of a continuing Armour research project in which fats are evaluated as potential ingredients in processed foods. The procedure is so simple — no product freezing or elaborate ingredient mixing — that mellorine processors can use it to check incoming fats as well as those in storage.

Procedure is to prepare a 10% cream of the fat to be tested, pasteurized fluid skim milk, and standard ice cream emulsifier. This mixture is heated to 143°F and homogenized. Sample is submitted warm (100°F) to experienced taste panel.

Control sample is made similarly to test sample, with the exception, that a good grade of mineral oil replaces the test fat. A 10-point scoring scale has been devised to evaluate the fat.

Fats which qualify

Meat fats which qualify have bland, neutral flavor; can be held for approximately 150

flavor, stability

days at 100°F without noticeable flavor change. They are processed from selected fresh beef fat, rendered at low temperatures. Physical properties comparable to butterfat:

1) Melting points are similar (high melting points are conducive to a greasy mouth feel).

2) Both emulsify readily, develop similar over-runs.

3) Churning-out times are similar (serious problem in soft ice cream during slow seasons).

4) Meat fats produce dry product when mix is frozen.

Relative costs of fats as used in a gallon of frozen dessert (8% fat) are:

meat fat	7.2c
vegetable fat	8.0c
butter fat	24.5c

Details of meat fat flavor test method and samples of Fro-Star meat fats are available from Refinery Div., Armour & Co., Chicago 9, Ill.

For more information circle 5390 on Reader Service Slip.

Tailored to meet exacting food specifications...

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Promote smooth, uniform texture, true flavor
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Preserve natural color and flavor of fruit
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Sweet Dairy Whey

A superior dairy ingredient that improves quality and reduces cost.

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The low-sweetening sugar that works wonders in food formulas.

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The most economical source for that well known special dairy solids flavor.

Angel-Whip

High quality, low cost whipping agent... increases tenderness, shortness and shelf life.

Powdered Milks

Whole milk (28% and 26% fat), High Heat, Low Heat and Instant Nonfat Dry Milk...all of Extra Grade quality.

This dairy product family is tailor-made for the food industry. The wide range of available products will permit you to take full advantage of the specific parts of milk needed in your formulas... from pure Lactose to Powdered Whole Milk. Buy these products individually or in prepared blends for particular applications.

Each shipment from Western Condensing Company is quality controlled for uniformity and dependability. Why not let us show you how the use of these rich dairy ingredients can improve your products and your profit picture?

What can we do to help you?

For working samples and detailed bulletins (be sure to state application), please write our Technical Service Department 118.

Remember, when you think of milk products, think of...

Valley Fresh FOREMOST

Western Condensing Company

Appleton, Wisconsin

A WORLD-WIDE SUPPLIER OF HIGH-QUALITY MILK DERIVATIVES

5392 on Reader Service Slip

Now there's a tenderizer for seafoods

You have heard of a seasoned tenderizer for meats, now comes one for seafoods. This new ingredient is a blend (liquid) of essential oils and tenderizing solutions, plus sodium benzoate.

Seafoods should be completely immersed in the seasoned tenderizer solution for 30 sec—then frozen or cooked immediately. Solution may be re-used, adding sufficient fresh tenderizer to again cover new batch completely. Processing immediately after immersion is essential to stop tenderizing action and prevent excessive tissue breakdown.

Trial quantities of Spisorama liquid seasoner or unseasoned seafood tenderizer are available from Dodge & Olcott, Inc., 180 Varick St., New York 14, N. Y.

For more information circle 5393 on Reader Service Slip.

NEW FORM OF SUGAR

*Liquid Sucrose-Dextrose Combination
*Multi crystalline

See article on page 29

QM symposium covers role of yeast in baked foods

Recently-released proceedings of Quartermaster Food & Container Institute symposium covers characteristics, growth, and function of yeast in baked products. Papers by both industry and QM people were devoted to problems in this field.

"Yeast—Its Characteristics, Growth, and Function in Baked Products" is issued by Quartermaster Food & Container Institute, 1819 W. Pershing Rd., Chicago 9, Ill.

"Auto-mersion" freezing may go to sea

Glycerine in immersion freezing processes can provide important advantages for fast automatic freezing. Adapted to commerical fishing vessels, such "automersion" may well enable the fisherman to preserve fish within minutes of the time of catch.

The ideal refrigerant liquid in such a process is one based on Glycerine—with its unique combination of low freezing point and nontoxic properties in solution. The unwrapped products can pass directly through the refrigerant, will emerge separately frozen, will not fuse into a solid mass. Salt or other acceptable additives may give extra preserving power to the freeze solution.

Glycerine has already been applied in solutions for freezing by direct contact, experimentally here —commercially abroad. In other types of food applications its acceptability has long been a matter of record.

Glycerine's usefulness continues to grow. Stable in price, dependable in supply, Glycerine offers processors a unique balance of properties: it is hygroscopic, nontoxic, stable, nonvolatile, with excellent solvent power and agreeable taste. New applications for Glycerine are extending its use in foods, pharmaceuticals, coatings, packaging and many other fields. For a useful 20-page booklet, "Glycerine Properties and Uses", write to:

Glycerine Producers' Association
295 Madison Avenue, New York 17, N. Y.

Nothing takes the place of Glycerine

5394 on Reader Service Slip

IN THE CHANGING WORLD OF FOOD

Desserts

MUST BE FAST AND FLAVOR-FUL!

There is no more important item in the gleaming cabinets of a modern kitchen than the varied array of powdered desserts! Gelatines...puddings...pie fillings...icings, today are a "fait accompli" in a matter of moments. And, thanks to "spray-dried" flavors, the taste-appeal is superb! DOLCOSEAL flavors for powdered desserts — part of D&O's extensive line of spray-dried products — can be counted on to deliver their original, true, fresh flavor even after extended shelf life. Specially processed to preserve all flavoring qualities, thoroughly tested in finished products, and competitively priced, they are available in a complete selection of flavors. For spray-dried flavors that guarantee results — try DOLCOSEAL. Trial quantities on request.

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Essential Oils, Aromatic Chemicals, Perfume Bases, Flavor Bases, Dry Soluble Seasonings

Write for copy of "The Changing World of Food"

5395 on Reader Service Slip

Candy releasing agent retains effectiveness batch after batch

Odor free, tasteless and protected by antioxidant

Features: Does not require the additional use of dusting flour for effective cooling slab operations.

Description: Developed especially for caramel and taffy processing, this semi-liquid agent is odor free and tasteless. Releasing properties of a single application last for a number of batches. Packed in 55 gal drums.

Candy releasing lubricant is available from Mallet & Co., Inc., 601 E. General Robinson St., Pittsburgh 12, Pa.

For more information circle 5396 on Reader Service Slip.

Deterioration of vitamin A halted by sealing within vegetable fat spheroids

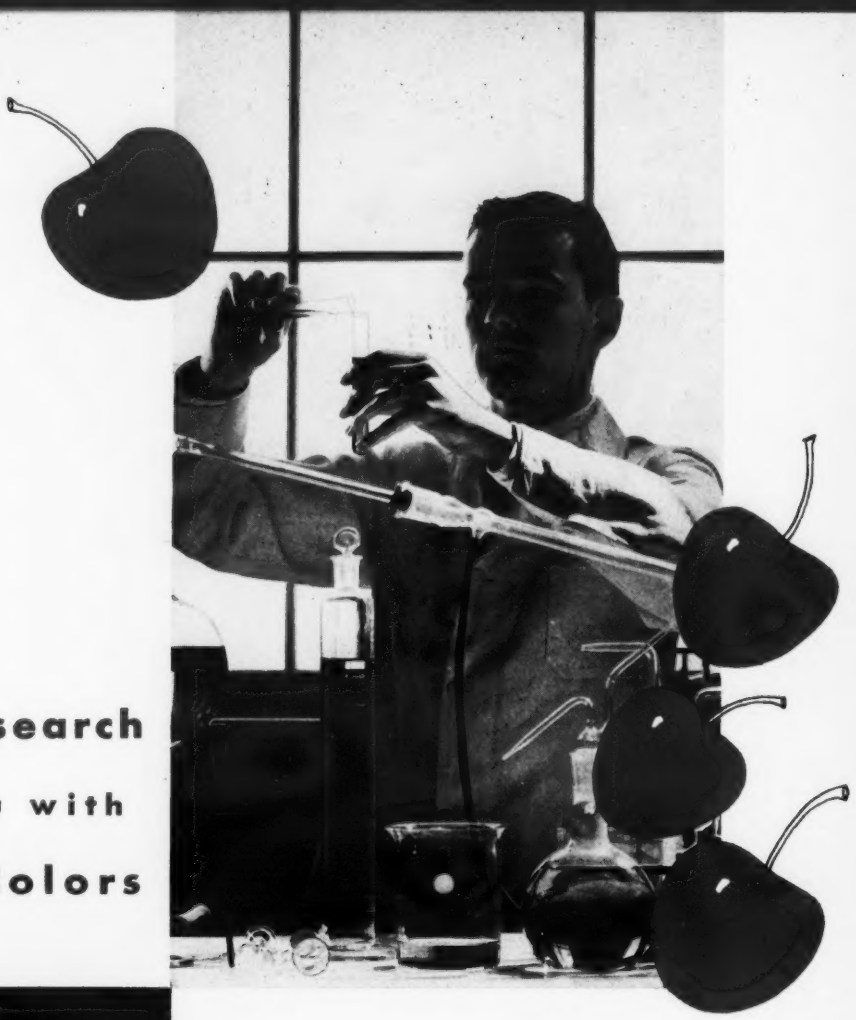
Data sheet describes ingredient for animal feeds which supplies accurate amounts of vitamin A. Differing from other vitamin A products, this ingredient protects against vitamin deterioration by incorporating it in small spheroids (droplets) of hydrogenated vegetable fat. The fat not only offers nutritional values of its own, but is completely digestible, thus making all of the vitamin A available to the animal.

Two-page sheet includes table showing vitamin A requirements of common livestock in terms of USP units/ton of feed.

Feed Products Buyers Guide on USI Permadry "Sealed in" Vitamin A is available from U. S. Industrial Chemicals Co., Division of National Distillers and Chemical Corp., 99 Park Ave., New York 16, N. Y.

For your copy simply circle 5397 on Reader Service Slip.

For more information on product at right, circle 5398 . . . see information request blank opposite last page.



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to provide you with Finer Food Colors

National

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FOOD COLORS

Changes in Certified Food Color Regulations are both a challenge and an opportunity.

As the leading producer, National Aniline has quickened the pace and expanded the scope of its research on new and better colors. We are cooperating constructively with every well-intentioned effort to provide even finer food colors into the future.

Meanwhile, our Technical Service Laboratories have lent prompt, practical help on necessary re-matches. New color formulations have been worked out to put even more eye-appeal into many processed foods.

We welcome the opportunity to work with you on current color problems and to plan ahead for even finer color in your new products.

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the new

'executive' size of

FOOD PROCESSING magazine

Have you noticed? . . . the past four issues of FOOD PROCESSING have been different! Lay this copy on top an earlier issue of FP (any issue before June) . . . compare them. Hold the new issue in your hands . . . slip it into your brief case. It "fits" . . . it invites easy reading. This is the fifth consecutive issue to appear in the new *"Executive Size"* . . . designed for busiest-of-all food processing executives.

It named itself . . . the *"Executive Size"* . . .

Nineteen years ago Putman Publishing Company created the design for business magazines known as "King Size" . . . bringing theretofore unknown visibility and greater effectiveness in editorial presentation (yes, for advertising too). Scores of other magazines adopted this format, and use it today.

Now, the *"Executive Size"* brings you new advantages as well as retaining the best of the old.

Leaf anywhere through the magazine . . . editorial material everywhere . . . front and back. No solid sections of advertising pages . . . newspaper-width editorial columns invites easy reading throughout.

We think you'll find the new *"Executive Size"* of FOOD PROCESSING easier to read, more interesting. *But* what do you think? Our first interest is in the reaction of our readers . . . and we'll welcome any comments you'll care to make.

food processing
PUTMAN PUBLISHING COMPANY
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flavor

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RASPBERRY FLAVOR
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using industries.

Developed with painstakin
many years of research, it
all of its fugitive and delica
rich flavor of the ripe raspb
fresh from the bush!

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lavor!

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LAVOR is an achieve-
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and delicate nuances the
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eader Service Slip

Meat tenderizer study yields practical answers

Papain, a plant enzyme obtained from the papaya, is the active ingredient in most commercial tenderizers.

Data from recent studies show that papain treatment gives definite tenderization of meat, but that significant tenderization occurs only during the cooking period. Holding papain-treated meats from one to five hours before cooking had no significant effect on eventual tenderness.

In analyzing the mechanism involved, it was thought probable that the heat-labile muscle proteins denature before the relatively heat-stable papain, and papain hydrolizes these denatured proteins with maximum effect.

The studies further indicated that incorporation of papain into meat to be tenderized is a most important problem. A microscopic study of beef cooked with papain showed that the enzyme does not affect sarcolemma (transparent sheath enclosing muscle fiber), nuclei, or muscle fibers to depths greater than 0.5 mm. Consequently, it was concluded that physical means of incorporation, such as thoroughly forking papain into the meat, should be used.

The above from article, "Application of Meat Tenderizer" *California Agriculture,* October 1956, by researchers of University of California, Davis, Calif.

Applications, properties of catalase enzyme

Technical bulletin (2-pg.) suggests applications for catalase enzyme—to prevent radiation damage, to remove oxygen, to act as an antioxidant, and in "sterilizing" foods.

Second page deals with the enzyme's properties in relation to effect of pH, temperature, and substrate.

"Catalase FC" Tech Bul #5 is published by Fermco Chemicals, Inc., 4941 S. Racine Ave., Chicago 9, Ill.

For your copy simply circle 5400 on Reader Service Slip.

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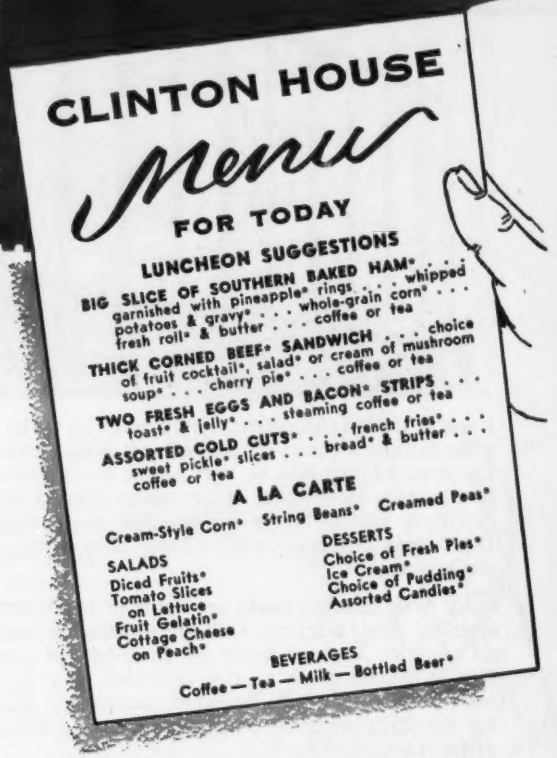
Clinton's famous
for service, too


CLINTON HOUSE
Menu
FOR TODAY
LUNCHEON SUGGESTIONS
BIG SLICE OF SOUTHERN BAKED HAM* . . .
garnished with pineapple* rings . . . whipped
potatoes & gravy* . . . whole-grain corn* . . .
fresh roll* & butter . . . coffee or tea
THICK CORNED BEEF* SANDWICH . . . choice
of fruit cocktail*, salad* or cream of mushroom
soup* . . . cherry pie* . . . coffee or tea
TWO FRESH EGGS AND BACON* STRIPS . . .
toast* & jelly* . . . steaming coffee or tea
ASSORTED COLD CUTS* . . . french fries* . . .
sweet pickle* slices . . . bread* & butter . . .
coffee or tea
A LA CARTE
Cream-Style Corn* String Beans* Creamed Peas*
SALADS
Diced Fruits*
Tomato Slices
on Lettuce
Fruit Gelatin*
Cottage Cheese
on Peach*
DESSERTS
Choice of Fresh Pies*
Ice Cream*
Choice of Pudding*
Assorted Candies*
BEVERAGES
Coffee — Tea — Milk — Bottled Beer*

* FOODS ENHANCED WITH CLINTON PRODUCTS FROM CORN:

Clinton® CORN STARCH
CORN SYRUP
REFINED CORN OIL

If you don't find what you want on the menu — just ask for it. From soup to dessert, Clinton products from corn have been serving packers, canners, bakers, candy makers, brewers and ice cream makers for years and years.

When a food processing problem calls for starches, syrups or dextrose . . . have Clinton give you a big serving of their technical service.

As a Clinton "regular" you'll join a clientele that includes some of the biggest food names in America. To insure promptness call on Clinton.

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FROM THE WORLD'S CORN CENTER

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CLINTON CORN PROCESSING CO.
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Our 50th Anniversary Year — 1907-1957

5401 on Reader Service Slip

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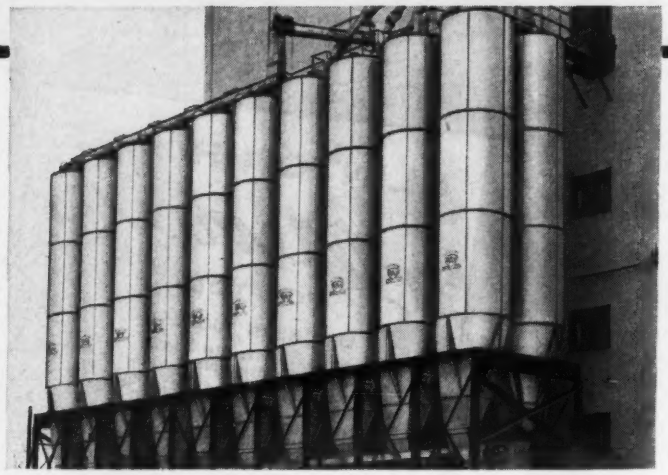
Cut Material Handling Costs with DAY BULK MATERIAL TANKS

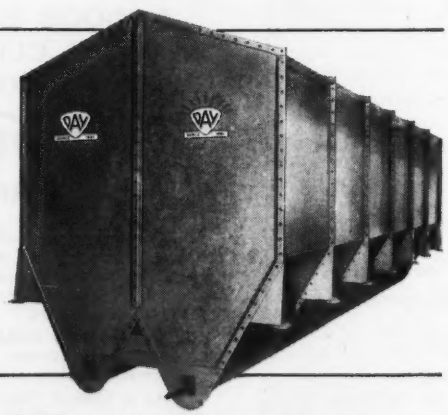


Each of these DAY vertical bulk material tanks has an approximate storage capacity of one carload. They serve as storage tanks for a packaging line as well as for truck and railcar loading. Every day more and more plants find large quantities of dry bulk materials can be handled more economically using DAY bulk material tanks. They save labor, containers and storage costs.

DAY bulk material tanks are made of black iron, galvanized or stainless steel. They are built and shipped in *easily erected, bolted sections.* Vertical tanks are furnished in sizes from 3 to 14 feet in diameter, up to 100 feet high. No support is required above the cone level. Patented, suspension discs are available for vertical type tanks to prevent bridging and assure free flow of product.

DAY Horizontal Bulk Material Tanks

Using DAY horizontal bulk material tanks, companies report savings of up to 25¢ per bag compared to handling bulk materials in bags. Ideal for buildings with limited headroom. Standard or special sizes available. Low installation cost.



For detailed information on bulk material storage tanks and pneumatic conveying equipment to suit your production and storage needs, write toDAY for Bulletins 529 and 549.

The **DAY** *Company*

Sold in United States by
The DAY SALES Company
848 Third Ave. N.E., Minneapolis 13, Minn.

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P.O. Box 705, Fort William, Ontario

Representatives in Principal Cities

DAY BULK MATERIAL HANDLING SAVES MONEY

5402 on Reader Service Slip

Pallet boxes of cucumbers arriving at Mt. Olive Pickle Co. are dumped mechanically into conveyor lines (note those left foreground) which empty into brine tanks

"Cukes" to brine tanks 15-24 hours faster

Pallet boxes replace bu crates. Filled at field buying stations, they are easily handled by fork-lifts in loading and unloading for transport and dumping at plant

During this year's hectic 6-week green cucumber season, Mt. Olive Pickle Co., Mt. Olive, N. C., changed to bulk-handling, wirebound pallet boxes for moving cucumbers from some 25 buying stations to plant. On arrival, pallet boxes are mechanically dumped into conveyor system which carries cucumbers directly into 700 bu brine tanks. Savings in time and labor have been so great, pallet boxes have replaced bu crates for all handling, says J. Benjamin Parker, Superintendent and Production Manager. With plant operations on a 24-hour basis, some 400,000 bu of pickles are picked up, transported to the plant, and dumped during the 6-week packing season.

The ruggedly constructed pallet boxes hold about 20 bu or 1000 lb and are designed for easy nesting. Uniformly easy mechanized handling saves time all along the line. The 36-man crew formerly required to operate unloading and tank filling stations has been cut to 12. Trucks no longer have long waits before they can unload at plant. Also, the pallet boxes fit onto truck platforms compactly, boosting payloads up to an impressive 36,000 lb.

Wirebound pallet boxes are made by General Box Co., 1825 Miner St., Des Plaines, Illinois.

For more information circle 5403 on Reader Service Slip.

At buying stations, graded cucumbers are dumped into conveyors which fill pallet boxes

On arrival, unloaded boxes are mechanically dumped. Mobile conveyors then move the cucumbers directly into tanks

Fork lift loads filled boxes onto truck for trip to plant

Empty boxes are nested, saving space on return trip

CY BELT says

"I can move and process it for you cheaper!"

If mounting production costs are eating up your profits, why not take a critical look at your processing costs? Perhaps certain manual operations can be done more efficiently and at far lower cost with a Cyclone Metal Conveyor Belt. One of our trained salesmen can investigate your present processing methods and, very probably, show you how a Cyclone Metal Conveyor System, tailored to *your* needs, can move your product less expensively. His services cost you *nothing*. Why not fill in the coupon today?

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American Steel & Wire Division
United States Steel Corporation, Waukegan, Illinois
United States Steel Export Company, New York

USS

USS CYCLONE METAL CONVEYOR BELTS
SPIRAL WOVEN
FLAT WIRE · FLEX-GRID

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Please have your trained representative call on us to discuss our production problems.

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UNITED STATES STEEL

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Give Your PROFITS a lift with the—

TIME SAVING
COST CUTTING

MOTO-TRUC

Everyone in Industry today is faced with the problem of maintaining profits in the face of steadily rising operating costs.

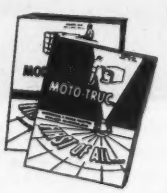
There is but one answer — keep costs down to the very minimum with the aid of modern equipment — with MOTO-TRUCS for instance.

Handling materials in factory or warehouse is a major cost item. That's where MOTO-TRUCS fit in. You can't beat them for efficiency, low cost of operation, simple construction, ruggedness and durability.

MOTO-TRUCS are made in a full range of capacities — from 1,000 to 10,000 pounds.

There is a "Walkie" or "Small Ride-A-Man" model for every handling need.

Write for Catalog No. 56W "Walkie" Trucks and No. 56R Rider Trucks.



CB Trucks . . .
1,000 to 3,000 lbs. capacity.

Platform "Walkie" Type 4000-10,000 lbs. capacity

Grip-All Tractor

Pallet Type "Walkie" truck 4000-6000 lbs. capacity

Builders Of The First Walkie Truck

The MOTO-TRUC Co.

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Pallet . . . Platform . . . Hi-Lift Truck

5405 on Reader Service Slip

Push button order filling

At Gallo Sales Co., South San Francisco, distributor of Gallo wines, filling of orders has been put on a push-button basis. A wide range of types and bottle sizes is handled, and speeds of over 1000 cases per hour are attained. Some 66 three-tiered gravity control racks store about 4000 cases. As cases are released, they are shunted to cross-feeding power belt lines. Latter move at speeds of 225 fpm, eventually lowering from a three-level arrangement and converging so that cases can enter roller conveyor for single file alignment, facilitating palletizing. Each order is first "set-up" on control panel. Then "Order Complete" button is pushed and cases are released and "counted out". A crew of four men fill the storage racks in the morning, and later in the day assemble orders on pallets, with one of the men handling the control board. Mathews Conveyor Co., Ellwood City, Pa., developed the push-button conveyor system. For more information circle 5406 on Reader Service Slip.

This month FOOD PROCESSING features its regular section on

MATERIAL HANDLING

"Cukes" to brine tanks 15-24 hours faster with pallet boxes ..... 56 and 57

Push button order picking 58

Precise syrup batching, sanitation keynote bulk sugar for "Coke" plant ..... 60 and 61

New developments in fork-lift trucks ..... 62 and 63

Views of industry specialists on today's material handling ..... 66 and 67

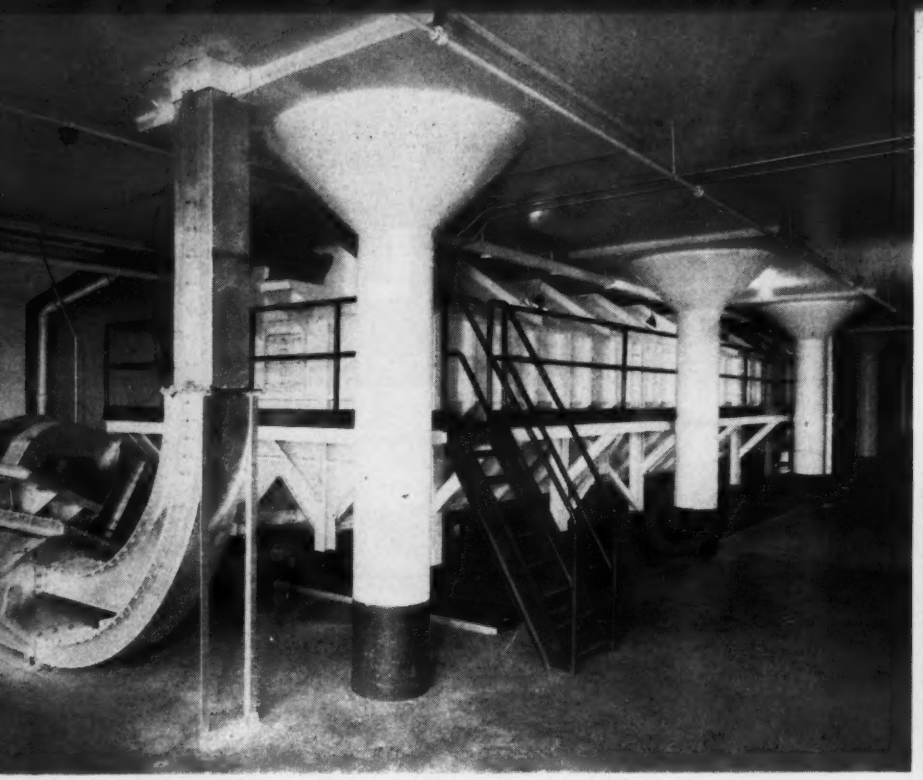
Cans "mark time" on "table" conveyor .. 68

Slick surface, eye-saving color speed removal of culls from belt ..... 70 and 71

Automatic alignment of steel belt keeps work table operating smoothly ..... 72 and 73

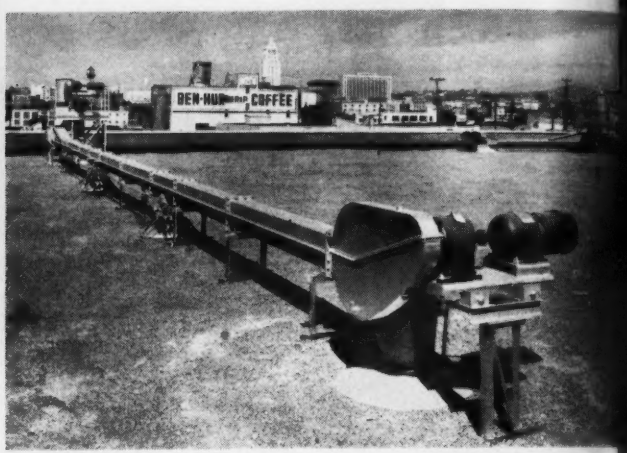
Dual pipeline all plant needs for truck to unload sugar to bins 80

Wire belt washing made automatic ..... 112 and 113



Enclosed drag conveyors bring the unloaded sugar into plant and up to this horizontal bin on third floor. It is 62' long, 8' high, and holds 210,000 lb. Leveling screw extends across top to distribute incoming sugar evenly

Batch mixing operations start when button is pushed on control panel (photo below). Sugar is elevated from storage bin to roof-top conveyor (which conserves plant floor space) serving surge bins immediately below on third floor



lk sugar is received by truck or Air-de® rr cars. In each instance, sanitary ok-up is made with underground con-veyor line through manhole

Sanitation control keynotes bulk sugar for 'Coke' syrup plant

Space saving innovation moves sugar underground, up side, then over roof to fit into existing building

Each batch is "just right" through automatic batch weighing, plus double-check system on accuracy

Manager W. M. Bonney pushes on master control board which manually starts conveyors for self-cleaning after delivery of sugar

W. M. BONNEY, Branch Manager
The Coca-Cola Company,
Los Angeles Branch
as reported by **KARL ROBE**

Problem-Solution: Money-saving is an important consideration in business, and this factor was not overlooked when The Coca-Cola Company investigated a change-over to bulk handling of sugar at their Los Angeles Plant. This plant makes the syrup for their fountain and bottle distributors throughout Southern California and Arizona.

Of prime importance was the assurance that each and every batch of Coca-Cola syrup is to be exactly the same as its predecessors over the years.

Management of The Coca-Cola Company finally evolved a system of automatic conveying and control, with a series of constant checks to assure that each batch was receiving correct proportions of sugar, right down to the last pound.

Manner in
is explained
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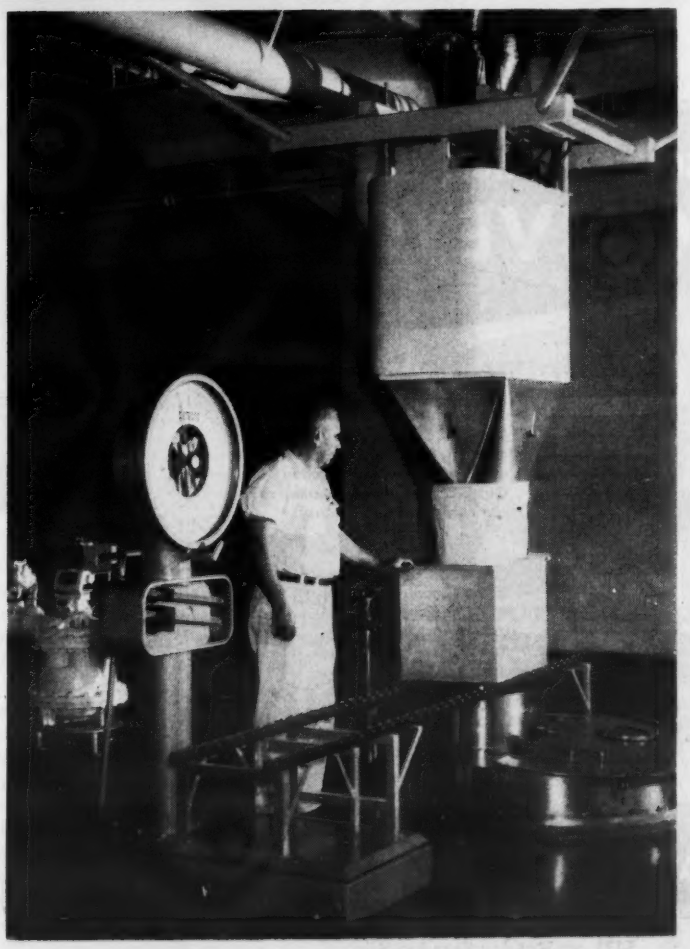
Surge bins store sugar for each of three batching scales. Sugar is delivered to the first of these bins with controllable valves at the entry port to tanks 2 and 3, allowing sugar to be directed into any or all bins by push buttons on control panel

Automatic weigh hoppers below on second floor receive 200 lb batches of sugar from surge bins. Sugar is then dumped into mixing tanks. Note tops of tanks just above floor line (arrow). Whenever sugar is discharged from surge bins to weigh hoppers, the feed conveyors leading from storage tank operate to replace sugar drawn off. After dumping, hopper fills again and cycle is continued until proper amount of sugar is delivered to complete batch



Manner in which system works explained in photos and captions.

Twice daily quality check

At the beginning of each work ift, operator wheels a dial beam ale to each weigh station sucssfully, turns panel switch to Ianual" and pushes "Weigh" tton. Sugar is discharged into tared container as shown in otograph at right. This charge then weighed on the scale, and adjustment is needed correcn is made.

The same process is repeated at d of shift, to make certain that ch batch during the day was ecisely proportioned.

Results: The Coca-Cola Comny not only is enjoying the oney-making advantages inrent in bulk sugar handling, t is also assured that there ll be no variation in Coca-Cola rup.

System is completely sanitary. teriors of all bins are coated th a double coat vinyl sysn. This surface is exceedingly ooth, and there is little or no hang-up of sugar on sides of bins under normal conditions.

All conveyors are switched to "Manual" control and run for a few minutes after each use, so that they may clean themselves of sugar in the system. Automatic weighing machines are simple and direct in action — as well as being flexible, so as to allow minute adjustments whenever the regular inspection of workload shows any deviation whatsoever from the pre-set amount.

Automatic batch scales are manufactured by Parsons Automatic Scale Co., 1827 Fifth St., Berkeley, California.

For more information circle 5407 on Reader Service Slip.

Bulk-flo conveyors, sugar storage bin and surge bin are products of Link-Belt Co., Prudential Plaza, Chicago, Ill.

For more information circle 5408 on Reader Service Slip.

Polyclutch vinyl spray enamel for this system is product of Pittsburgh Plate Glass Co., One Gateway Center, Pittsburgh 22, Pennsylvania.

For more information circle 5409 on Reader Service Slip.

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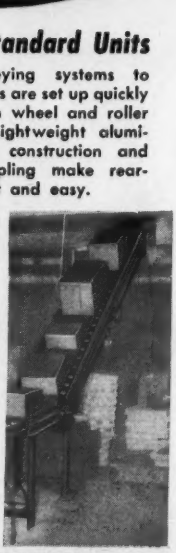
CONVEYORS

Custom Systems from Standard Units

Gravity conveying systems to meet your needs are set up quickly from Buschman wheel and roller components. Lightweight aluminum or steel construction and Quick-Eez coupling make rearrangement fast and easy.



Powered Beltevator and gravity roller or wheel conveyors can efficiently handle your high volume at less cost. Saves labor, from trucks to sales room to parking lot.

Write today for Bulletin 15

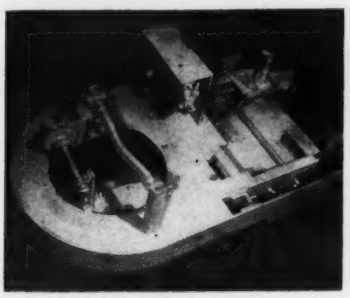
PRODUCE MORE... FOR LESS
Buschman Conveyors

THE E. W. BUSCHMAN CO.
4411 Clifton Ave. • Cincinnati 32, Ohio

5411 on Reader Service Slip

NEW DEVELOPMENTS

Design innovations, ingenious accessories improve performance, safety, ease of operation



About 450 fewer parts are used in truck employing all-hydraulic design on drive, lift and tilt. Clutch, differential, transmission, differential axle and drive shaft are eliminated. All hydraulic brakes never need adjustment. Pneumatic or cushion wheels quickly interchange. Views above show all welded plate frame and rear drive and steer, utilizing 112 ball bearings. With drive and steer on same wheel, driver has mechanical power assist. Power — Willys 50 hp engine. LP available as extra. Speed 1-11 mph. Length, less forks, 84". Turns full 90°. Built in two capacities: 2,000 lb at 24" center; 4,000 at 24" center.

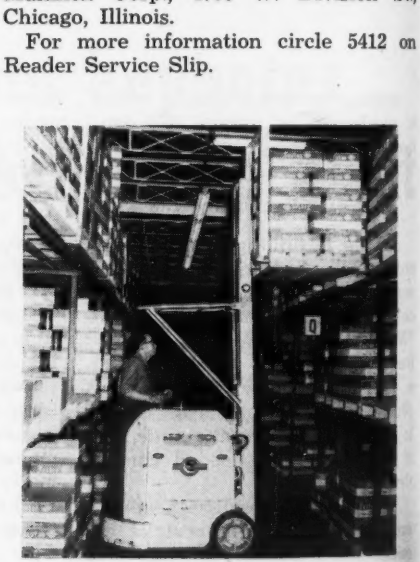
All-hydraulic is built by Pettibone Mulliken Corp., 4700 W. Division St., Chicago, Illinois.

For more information circle 5412 on Reader Service Slip.

Unitized design of new electric truck assembles front wheels, axle, differential, gear reducer motor, and brake assembly in one close-coupled package. Three sizes: 1,000, 2,000, and 3,000 lb. Length 60"; turn radius, 52". Power and drive units can be dropped out by removing 6 bolts. Easy accessibility for electrical, mechanical, and hydraulic maintenance provided by hinged floor plate. Four forward speeds up to 6 mph. Adjustable pallet forks. Mast height 60" and higher, if desired.

Pug trucks are built by Hustler Corp., Elm Road, Willoughby, Ohio.

For more information circle 5413 on Reader Service Slip.



Maximum height stacking in narrow aisles is possible with truck that is but 85½" in length, including 26" forks. Width only 34"; turning radius 50". Fork lift total 135"; collapsed height 91". Has capacity to 4,000 lb.

Model BEL 2-18 is built by Barrett-Cravens Co., 630 Dundee Rd., Northbrook, Illinois.

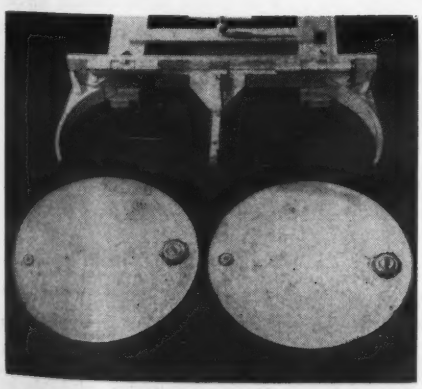
For more information circle 5414 on Reader Service Slip.

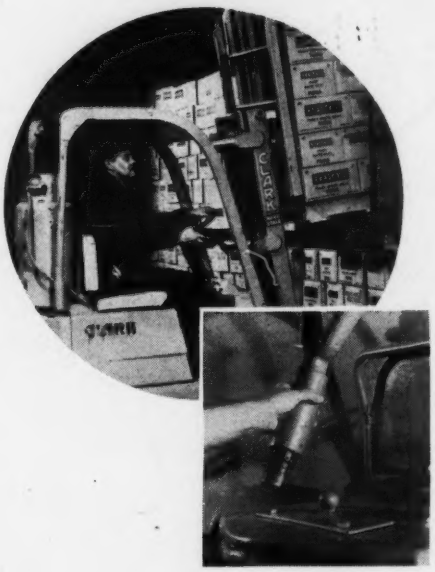
IN FORK LIFT TRUCKS

"Dynamic braking" and "controlled plugging" are initiated instantly by control handle especially designed for "walkie" trucks. When handle's two rubber-covered grips are rotated forward, motion is forward, when reverse, travel starts in opposite direction. "Dynamic braking" is available with either forward or reverse travel and takes place when handle is released or returned to vertical position. Emergency solenoid brake functions with handle in full vertical or horizontal position and control in neutral or forward speed. Three speeds forward and reverse. Dual sets of control buttons are on each side, horn button between.

"Roto-Cam" control handle is available on line of "walkie" trucks built by Lewis-Shepard Products, Inc., 126 Walnut St., Watertown, Massachusetts.

For more information circle 5415 on Reader Service Slip.





Both driver and load safety are provided for in available features on new electric trucks. Streamlined overhead guard offers additional advantage of low over-all height with ample headroom but rear strut is spring-loaded to swing up out of way of hood. Ball-and-socket strut support opens with one hand.

Load safety rack permits use of full fork length as rack face is flush with face of forks. Captive pins anchor rack. They permit quick rack removal without tools. There is no loss of fork spread.

Guard and clamp are featured on Clarklift trucks made by Clark Equipment Co., Battle Creek, Mich.

For more information on guard circle 5416 on Reader Service Slip.

For more information on clamp circle 5417 on Reader Service Slip.

Double (and single) drum handling attachments are especially beneficial in full time drum operations, being able to operate in narrow aisles and utilizing storage and shipping space. Built for a wide range of weight capacities. Grabs pictured handle total loads to 3,000 lb, slip on forks easily. Non-hydraulic, as weight of drum on clamp causes grip. Special models handle rimless and fibre drums, barrels, etc.

"Vert-O-Matic" attachments are products of Kughler Development Corp., 115-117 E. 129th St., New York 35, N.Y.

For more information circle 5418 on Reader Service Slip.

Integrate RECEIVING of *Free-Flowing Bulk Material with Storaging, Reclaiming and Processing*

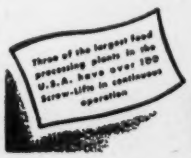
Screw-Lift - Screw-Veyor

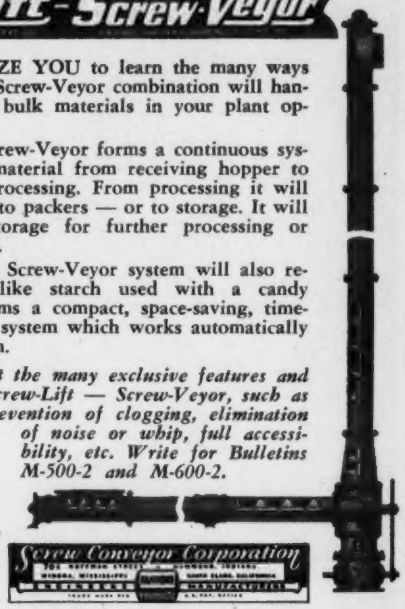
IT WILL AMAZE YOU to learn the many ways a Screw-Lift — Screw-Veyor combination will handle free-flowing bulk materials in your plant operations.

Screw-Lift — Screw-Veyor forms a continuous system — taking material from receiving hopper to storage, or to processing. From processing it will deliver material to packers — or to storage. It will reclaim from storage for further processing or ultimate packing.

A Screw-Lift — Screw-Veyor system will also recycle material like starch used with a candy "Mogul". It forms a compact, space-saving, time-saving handling system which works automatically without attention.

Let us point out the many exclusive features and advantages of Screw-Lift — Screw-Veyor, such as feed control, prevention of clogging, elimination of noise or whip, full accessibility, etc. Write for Bulletins M-500-2 and M-600-2.





5419 on Reader Service Slip

High-capacity, new sifter solves many problems

Dust-tight — can be made gas-tight!
Only from 28 inches to 45 inches headroom required!
Screen readily accessible for rapid cleaning!
Carbon steel construction — stainless steel parts available!

Write For Bulletin 160

RICHMOND / SPROUT-WALDRON

GYRO-SHAKER

It has proved itself highly successful in big-capacity applications and for handling materials such as sugar, starch, etc. Available with single screen areas ranging from 5 sq. ft. to 35 sq. ft. and up to 70 sq. ft. with two screens. Get details now.

PR/506-F

SPROUT-WALDRON

Manufacturing Engineers Since 1866

25 LOGAN STREET, MUNCY, PA.

EQUIPMENT FOR SIZE REDUCTION, MIXING & BLENDING, PELLETING & CUBING, BULK MATERIALS HANDLING, PRODUCT CLASSIFICATION

5420 on Reader Service Slip

Work with your AIM*... American Home Foods does...

Acme Steel Strapping palletizes No. 10 cans

Acme Idea Man J. R. Roberts helped work out this palletizing method.

American Home Foods Division of American Home Products Corporation, Oakland, California, protects inter-plant cross-country shipments of raw materials for quality food products with a new palletizing technique. Working with their Acme Idea Man, a method was developed in which 336 No. 10 cans (56 cases) are palletized into a tight, secure pack that materially cuts handling and shipping costs and in-transit damage (Idea No. S3-30).

With this new method cans are individually handled only once from shipper to consignee, and individual case costs have been cut 50 per cent. Palletized cans are quickly handled by lift truck, and permit a freight car to be loaded in only half the time required in hand loading. Lading damage in transit has dropped to a negligible point, as proved by records of over 360 carloads shipped.

***Work with your Acme Idea Man** to improve your product protection methods. Find him under "Steel Strapping" in the yellow pages. Or write Dept. FGS-107, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada Ltd., 743 Warden Ave., Toronto 13, Ontario.

ACME STEEL **STEEL STRAPPING**

5421 on Reader Service Slip

Maneuverability featured in food plant trucks

Maneuverability in narrow aisles is featured in trucks especially suited to food plant and warehouse service. This is achieved by less overhang, lighter weight, low silhouette,

Smooth operation aids handling of 3000-lb pallet loads

and greater forward tilt. Unit pictured in service in an Oregon fleet handles a variety of foods in cans and cases as well as produce in bags. Smallest capacity models of this series of trucks are only 66½" long, 32½" wide; have 68" turning radius.

Design emphasizes practical elimination of cowl and other obstructions to assure maximum visibility. Self-energizing, self-equalizing hydraulic foot brakes and separate parking brake linked to driver's seat give added safety. Larger capacity models are available in range of 2000 to 7000 lb.

FT electric trucks are built by The Baker-Raulang Co., a subsidiary of Otis Elevator Co., 1250 W. 80th St., Cleveland 2, Ohio.

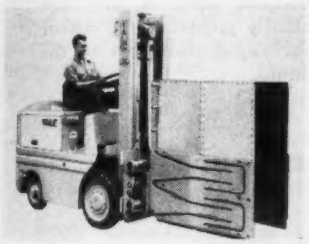
For more information circle 5422 on Reader Service Slip.

Clean Wire Belts . . .

without removal from conveyor frame is possible with recently developed mobile washing unit. See article in Sanitation section, page 114.

Narrow arm permits closer stacking

Special narrow arm design permits closer stacking of cartons. Clamp is unique in that articulation is accomplished through the deflected metal construction of the arm, eliminating bulky arrangements on outer side of arm assembly. Two clamp pads are aluminum, faced with rubber. In this instance, each pad would measure 26". Standard pad height is 48". Range of clamp is 22 to 68". Arranged with three pressures, but a higher number can be obtained.



Clamp reach is up to 54"

Clamp is development of Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pennsylvania.

For more information circle 5423 on Reader Service Slip.

How to select battery of proper capacity

Batteries from theory to maintenance are covered in 44-pg manual. Provides processors, who use battery-powered industrial trucks, with helpful hints on lead-acid battery selection for proper work load, charging room layout, battery maintenance and repair, and how to set up for an employee training course. Manual includes over 60 photos, diagrams, and tables, augmenting description of construction and what goes on inside a battery.

Bul GB-1599A, "Battery Users Manual", may be obtained from Gould-National Batteries, Inc., Stone & Calhoun Sts., Trenton 7, N.J.

For your copy simply circle 5424 on Reader Service Slip.

...lets one man handle work you'd pay a crew to do!

By putting new efficiency, safety and positive control into the hands of Towmotor lift truck operators you enable them to do a *bigger day's work, easier.* You let each one handle jobs you'd normally hire a *gang* to do.

Through modern Towmotor mass-handling each operator has the power to improve your profit picture, because the new Towmotor fork lift trucks multiply their productivity. Look over the new features that operators like best about our latest models—such as:

- New planned-comfort design
- Off-center adjustable seating
- Double action hydraulic tilt
- Newly-improved power steering
- "3-second access" to engine
- Famed 12" reach for all controls

Before you decide on your next fork lift truck, we urge you to get all the facts on the newly-designed Towmotor units. Write to Towmotor Corporation, Cleveland 10, Ohio, today and ask for our new illustrated lift truck booklet—No. SP-23.

Leaders for 38 years in building Fork Lift Trucks, and Tractors

TOWMOTOR-GERLINGER
THE ONE-MAN-GANG

Gerlinger Carrier Company, Dallas, Oregon, is a subsidiary of Towmotor Corporation, Cleveland, Ohio

5425 on Reader Service Slip

Versatile, mechanized material handling aids all plant operations *say these industry specialists*

H. J. MOORE,
Head of Industrial Engineering Div., Swift & Company

Diversity of operations, and varying characteristics and volumes of loads encountered in the meat packing industry probably brings into use as many different kinds of equipment as in other food processing fields.

With the unloading and movement of materials and products through the plant, and in and out of transit a substantial part of operations, modern handling continues to be one of the few areas where one may look to make noticeable savings.

Although the fork-lift and tractor type units are among the oldest and most familiar of our industrial work horses they offer excellent examples of the widening applications that characterize modern material handling equipment. Attachments for specific loads and operations speed operations, save unnecessary manual effort, and avoid congestion.

Today, in improving operations, requirements of a process can usually be met almost ideally by handling devices. For example, reversible powered roller conveyors, of adjustable length, simplify movement of product in and out of plants.

Improvements are constantly being made in overhead handling. These are particularly emphasized in recently installed systems in which cattle dressing operations are carried on with the carcasses remaining on the conveyor continuously.

All these developments are being merged into the pattern of accelerated integration that characterizes the material handling techniques of today.

HARVEY A. SCHEEL,
Director of Engineering, Green Giant Company, Le Sueur, Minn.

Improvement in material handling in the canning industry has moved forward rapidly all the way from field, to plant, to warehouse. Some of the greatest advances continue to come in agricultural phases. The lug box is replaced by larger unit loads which lend themselves to mechanized handling, notably with modern fork-lift trucks. Related equipment such as hoppers, dumpers, and tanks expedite smooth, continuous flow. The field tractor is ever more versatile, furnishing power at any point for a variety of jobs. Receiving and in-plant handling of cans, themselves, is constantly being speeded up by adoption of unit-load methods.

Advanced design of conveying equipment helps to protect product quality and reduce damage to tender foods. Also, special rubber and plastic coatings for belts make for better sanitation and cut maintenance costs. All these advances have played a part in the trend to making cooking, cooling, and related processes more continuous. The ultimate goal of the canner is a higher quality product at lower cost to the consumer, and material handling progress contributes to this in a large measure.

JAMES J. McCABE,
Industrial Engineer American Maize Products Co.

One of the major contributions of advanced methods of material handling at American Maize Products Co., Roby, Ind., is in the fields of housekeeping and sanitation. This activity keeps janitors, yard sweepers, and scrubbers busy day and night. However, a chore constantly with us is the daily removal from inside plant buildings of piping, duct work, and a variety of scrap generated by carpenters, pipe fitters, and electricians. Also, a tremendous quantity of multiwall bags must be removed daily from processing departments.

We have found that an easy way to keep the interior of our multibuilding plant free from such debris is to use special containers located near each building. Enclosed, dustless, they are mechanically picked up by motor truck for rapid transport to the plant dump.

DR. LYLE SEATON,
Agricultural Development Mgr. Consumer Research, Metal Div. Continental Can Co., Inc.

A noticeable revolution has been in progress the past decade in reducing costs of growing processing crops.

Conveyor belts are helping to pick such crops as tomatoes, strawberries, pineapples, and asparagus. Lift trucks and pallets have been adapted to operate in and near field and orchard operations. Here are savings in time and labor.

Analysis of a Michigan study reveals an average of 9.9 min for a 3-man crew to unload 100 lugs of cherries by hand, while one man with a lift truck did the job in 1.9 min. Savings in labor charges on 100 lugs amounted to 51.8c.

Small raw product field receiving stations should be replaced by large paved areas operated jointly by several growers and/or processors. Where such arrangements have been made, lift trucks unload grower's field conveyances; samples are inspected and fruit reloaded to pallets for movement by highway trailers to

processing plants.

Unloading wagons and trucks of sweet corn to storage bins and wagons is being replaced by a system of dumping the sweet corn on concrete aprons and pushing it into submerged conveyors with a "corn-dozer". This reduces product handling expense without major changes in the factory.

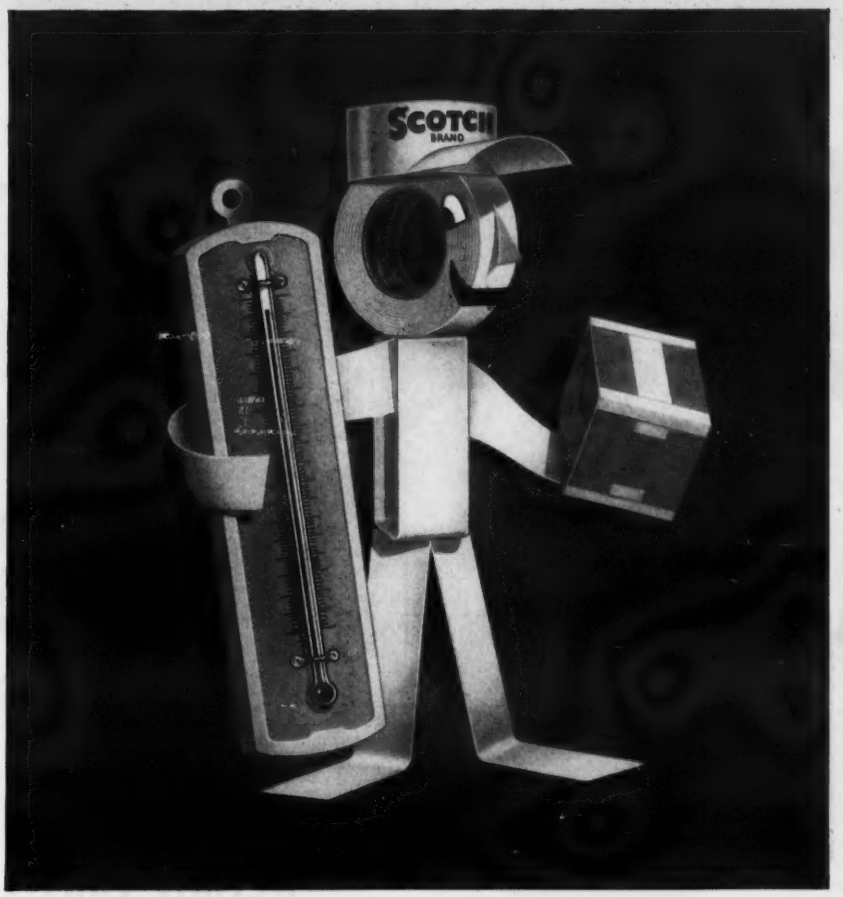
It seems evident that improvements in handling raw products from field to cannery afford a fertile field to the processor interested in reducing operational costs.

JOHN A. RAVEN,
Superintendent, Chicago Warehouse, International Salt Company

With today's increasing costs, efficient handling of bulk materials is more important than ever before. International Salt's warehouse was designed to receive salt cheaply and quickly in boatload and carload lots.

A working tunnel within the salt pile has proved to be safe and efficient in our first two years of operation. A combination of front end loaders and belt conveyors for the bulk salt, and both conveyors and fork-lift trucks for bag salt has been very workable.

One of the outstanding factors in our operation has been the ability to use existing machinery in different ways to meet new handling problems and changing requirements. It would be advisable for those contemplating a new operation to follow a plan of purchasing equipment that is versatile.



On all kinds of shipping cartons...

Stick-at-a-touch tape holds in any weather!

No wetting. No rubbing. No re-sealing problems. "SCOTCH" Brand Carton Sealing Tape No. 260 sticks at a touch. Just lay it in place and press. Designed specifically for all-weather performance, it's unaffected by dampness or temperature extremes.

Takes roughest handling, too. When dry, this tape stands up under 50% more handling abuse than tapes of conventional construction—takes *400%* more punishment when wet!

Ask your "SCOTCH" Brand tape distributor for a free demonstration. See how *other* packers cut costs and increase efficiency the "SCOTCH" Brand way.

CARTON SEALING TAPE...*one of over 300 Pressure-Sensitive Tapes, trademarked*...

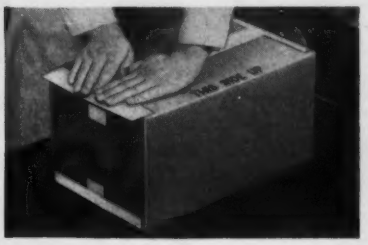
REG. U. S. PAT. OFF.

SCOTCH
BRAND

The term "SCOTCH" is a registered trademark of Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. Export Sales Office: 99 Park Avenue, New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.

PRODUCT OF 3M COMPANY RESEARCH

Look what you can do with it!



SEAL CARTONS inexpensively without mess or failure. "SCOTCH" Brand Carton Sealing Tape No. 260 sticks at a touch. Stays put. Meets government packaging Spec. PPP-T-76.

SEAL CONTAINERS of any size or shape. Thin and flexible tape has good tensile and tear strength in both directions; good adhesion and wet grab. Makes firm bond with no "creep."

NO FUSS, no muss. This inexpensive pressure-sensitive tape is ready to use any time, anywhere. No moistening required. No clean-up chores or daily care of dispensing equipment.

FREE FOLDER gives you all the facts on "SCOTCH" Brand Carton Sealing Tape and dispensers. Address Dept. IF-107,| Minnesota Mining and Manufacturing Co., Saint Paul 6, Minn.

5426 on Reader Service Slip

NOTHING HURTS a cushion..

BUFFALO "Cushionized" CONVEYOR BELTS

You can take the hardest blow to the "bread basket" with a grin if the punch is "cushionized". That's true of conveyor belts, too! If they're made of hard, rigid, plied-up material, they resist impact and consequently wear out too soon!

"Cushionized" Buffalo Belts are tightly woven from the toughest cotton yarn available and have a "bouncy" reaction to IMPACT and ABRASION. Drop heavy objects on a Buffalo Belt all day long, day in and day out and see the difference. Nothing normal DIGS, DENTS or DESTROYS these belts, except OLD AGE itself! They're bouncy, tough and PLIABLE! If your conveyor is bumpy or out of line, Buffalo Woven Belts, ALIGN THEMSELVES. If they come to a rough or bumpy spot in the line they just MOLD themselves AROUND it and keep on going. Nothing hurts these Buffalo Belts because they're CUSHIONIZED. Next time you order belts . . . buy the "bounce that counts" . . . buy Buffalo! They LAST LONGER . . . COST LESS!

200 SIZES
35 WIDTHS
7 THICKNESSES

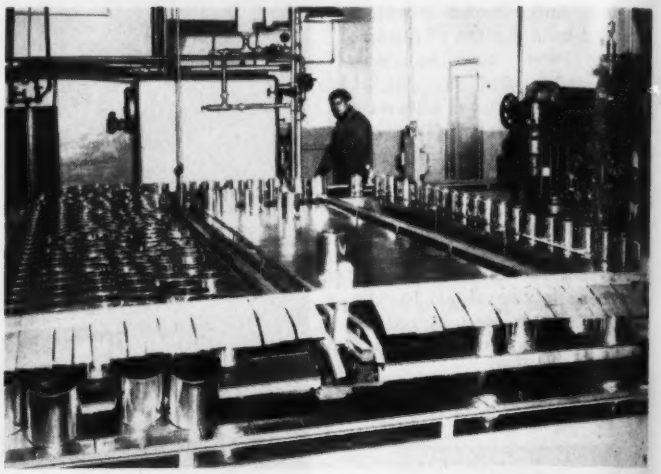
6 SPECIAL SURFACES

In addition to Buffalo's regular woven belt, which is ideal for most conveying jobs, we also COAT this basic belt SIX DIFFERENT WAYS to meet SPECIAL REQUIREMENTS. Whether you need a belt to resist weather or water; acids, oils, grease or alkalies; highest or lowest temperatures or to handle dainty pure foods or just plain rough and tough material . . . we have a belt, specially surfaced to handle the job.

WRITE
for 14 page manual
on "How to Buy The Correct Belt for Your Conveying Job". Illustrates regular and treated Belts and their USES.

BUFFALO WEAVING & BELTING CO., INC.
208 CHANDLER STREET BUFFALO 7, NEW YORK
NEW YORK PHILADELPHIA CHICAGO DETROIT LOS ANGELES
We also manufacture a complete line of WEBBINGS and PURE SHEET RUBBER.

5427 on Reader Service Slip



3-lb cans of shortening get slow "cool-off" ride on belts on way to case packing station

"Table" conveyors permit cans to "mark time"

Hold warm shortening for 11-18 minutes for setting to proper texture

At Shortening Corp. of America, Jersey City, N. J., cans coming from fillers must be held for from 11 to 18 minutes for contents to set to desired texture, and they must remain unagitated during this period. View above shows the large "set-up" metal table conveyors used for this purpose to receive cans filled at rate of 50/min. Moving continuously, but very slowly, cans are finally discharged to narrow belt conveyor of same basic type, that carries them to case packing stations.

Surface area of the twin tables is 4' x 16' each. They require 30% less space than a serpentine installation would have needed. In addition, they handle any can size, and switch from one size to another involves no changes in guard rails and transfers. Similar metal conveyors are also used in feeding cans to fillers and to the set-up tables themselves. Smooth surface of belt is maintained with no gap between links, even when flexing around conveyor ends. Automatic take-up compensates for heat expansion.

Two basic components (link and connector) snap together by hand without tools. Since the engagement of the connector is close to the belt surface, the load exerted on the panel at joint is almost all tension, with practically no bending movement, permitting use of a lighter belt section for handling an equivalent load.

Armorbelt conveyors are built by M-H Standard Corp., 515 Communipaw Ave., Jersey City 4, New Jersey.

For more information circle 5581 on Reader Service Slip.

Introduces 300-gal tank to ship liquids

Equipped with 4½" legs for easy lift truck handling

Closed tanks of 300-gal capacity have been developed for processors requiring containers larger than existing 55-gal drums to handle liquids. Initial use was to ship liquid sugar. Tanks have proved satisfactory during the two-year trial period.

Tanks serve not only to transport liquids but also for storage at processing plant

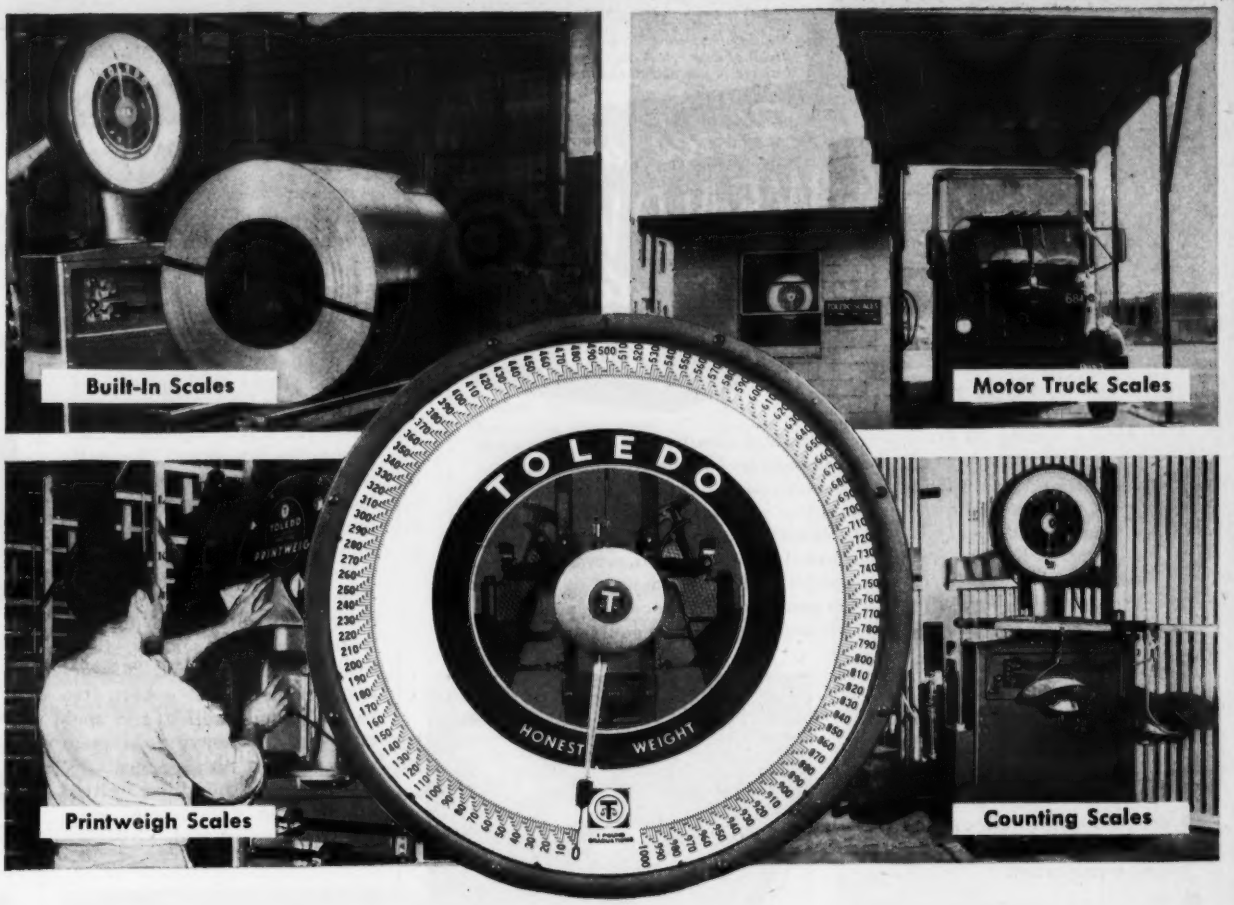
Tanks are built by the same manufacturer as the well known Tote bin system of handling dry ingredients. Similar to the bins, corners of the tanks have 4½" legs for easy lift truck handling. Discharge of contents is by either of two methods — pumping out from the top, or gravity discharge through a bottom opening. Tank has standard drum closure at top, permitting easy access to interior for filling, cleaning, and inspection.

Tank has over-all dimensions of 42" x 42" x 48", and is usually fabricated from ½" aluminum plate. However, tanks can be fabricated in other sizes and from other metals.

Tote tanks, similar to Tote bins, can be handled by any flatbed conveyance. Thus, a standard stake body or van type truck or highway trailer can be converted into a bulk liquid carrier.

Tote tanks are available from Tote System, Inc., Beatrice, Nebraska.

For more information circle 5428 on Reader Service Slip.



For new ways to control your costs . . .

take a *Plant-Wide Look* at Weighing!

What's the status of weighing in *your* plant? It's important to know because weighing is a vital element in the overall cost control system. Weight records directly affect costs, quality, inventory control and customer billing. Weighing errors—or inadequate weight data—set the stage for losses in output, profits and customer good-will.

This calls for integration of weighing in a plant-wide weighing system . . . the right scales in the right places . . . to supply basic records on materials received, processed, shipped or transferred.

To learn the job your scales are now doing, we invite you to send for the new Toledo Weight Fact Kit. It will help you determine how well your scales measure up as a weighing system—help you detect weighing inefficiencies that drain profits.

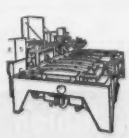
REQUEST YOUR WEIGHT FACT KIT NOW. No obligation. Address Toledo Scale Company, 1419 Telegraph Road, Toledo 13, Ohio.

TOLEDO® **HEADQUARTERS FOR WEIGHING SYSTEMS**

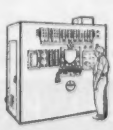
CUSTOM PRODUCTS FOR INDUSTRY

REMOTE DIGITAL WEIGHTS. Toledos automatically transmit weights to electric office machines located anywhere.

ELECTRONIC SCALES give electronic wings to weights; head may be located anywhere.



TESTING Toledos today test a wide range of parts; this device for leaf springs.



AUTOMATIC BATCHING SYSTEMS interlock batteries of scales.

5429 on Reader Service Slip

Another interesting Wendway installation. Twin flights of wide belt Wendway operate continuously between production stations to convey air filters to inspection stations.

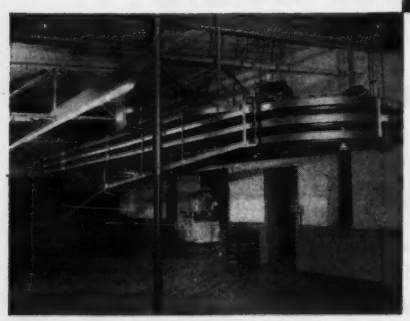
Here's what WENDWAY can do for You!

Wendway can be your "silent partner" by conveying any light products weighing 20 lbs. or less, swiftly and silently from one operation to the next. Wendway conveying systems are completely sanitary . . . safe for operators, too! Wendway will carry your products overhead, through walls, upstairs or down—to any place you want them. Wendway will eliminate wasted manpower, unnecessary handling and boost production all along the line. Standardized powered straight sections, curves, switches, etc., are operated by remote control and easily adjusted to required speeds. Wendway will smooth out your assembly processing, packing or inspection problems and pay for itself in time and equipment saved.

Remember . . .

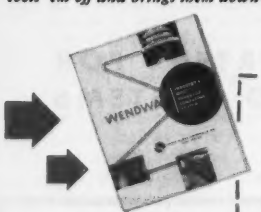
- **Wendway answers your 'light product' conveying problems.**
- **Wendway complies with even the most rigid sanitation codes.**
- **Wendway synchronizes perfectly with other production line equipment.**
- **Wendway increases production line profits.**

Wendway belting will not damage even the most delicate of products. Automatic conveying assures products of cleaner, fresher, neater appearance.



Overhead cooling for cooked or heated products saves you time and floor space. Wendway takes 'em up, cools 'em off and brings them down—automatically!

Cartons, fragile packages, etc., are completely safe on Wendway. Smooth, silent travel delivers products in perfect shape, clean and fresh in appearance.



Write today for additional information, literature and specifications to match your conveying requirements.

Gentlemen:
Please have your area distributor contact me at once.

Name _____ *Title* _____

Company _____

Address _____

City _____ *Zone* ___ *State* _____

The product to be conveyed is _____

UNION STEEL PRODUCTS CO., Albion, Michigan

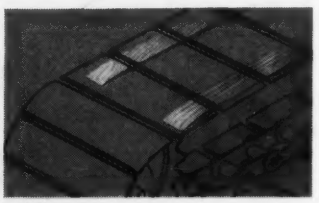
5430 on Reader Service Slip

material handling

How food processors use wood bearings

Recent and revised information on lubricant-impregnated wood bearings is presented in a 24-page catalog. A wide range of standard applications is described, in addition to specialized applications such as that illustrated. Here, the dense hardwood material is used in wear strips for a flat-top chain conveyor on can lines. The self-lubricated, low-friction surface delivers exceptionally long wear in this rugged service.

Catalog gives sizes and characteristics of standard conveyor roller bearings as well as of self-sealing, free-draining, and conical bearings for use on live belt, live roller, gravity roller, and special screw conveyors. Uses in brewery bottling operations, fish storage handling, citrus plants, and commercial conveyors are pictured.



Wear strips for chain are of self-lubricated wood

Catalog No. 240 — Arguto Oilless Bearings — is issued by Arguto Oilless Bearing Co., 149 W. Berkeley St., Philadelphia 44, Pa.

For your copy simply circle 5431 on Reader Service Slip.

9 types of belting for food plants

White and brown friction surface, white and brown ruff-top, white covered, friction surface for power transmission, lapless endless, spliced endless, and cleated beltings are described in 8-pg catalog.

Neoprene, rubber, woven duck, and fabrics with special coatings are a few of the materials available. Beltings

Magcoa / Tobey aluminum Trucks

Always bright and clean

NO maintenance

Light-weight . . . efficient

easiest to push and steer!

- **Cut handling costs**
- **Non-toxic, odorless aluminum**
- **No painting or special finish required**
- **Entire truck is maintenance-free**
- **Easy-swivel, free-rolling casters**
- **Available in many styles and sizes**

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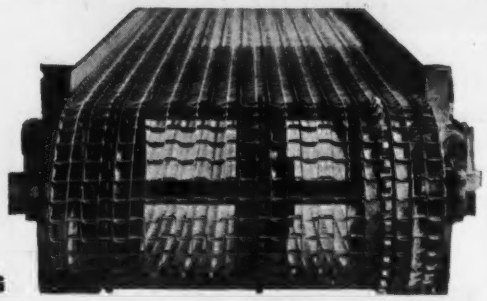
5432 on Reader Service Slip

This Endless Belt Gives Endless Service

in
- Processing
- Packing
- Shipping



LA PORTE
FLEXIBLE STEEL
CONVEYOR BELTING

Whether your process is Freezing, Canning, Pickling, or Dehydrating, a La Porte Belt will carry your product through every operation, plus packaging, storing and shipping, safely, quickly and economically. Its strong steel mesh construction resists loading impacts, prevents creeping, weaving, and jumping, and permits the circulation of air, and liquids around products in process . . . also facilitates cleaning and sterilizing.

Available in ½" x 1"; also 1" x 1" in any length and practically any width.

LA PORTE

Ask your Mill Supplier or write for illustrated literature, prices.

MAT AND MFG. CO.
BOX 124 Dept. A La Porte, Indiana

5433 on Reader Service Slip

recommended for food processing requirements are oil and heat resistant, odorless, tasteless, and easy to clean.

Two pages are devoted to tables and formulas to help plant managers in selecting belt length and speed (ft/min), maximum product weight on belt at any one time, hp to drive flat belt conveyor, and belt plies needed.

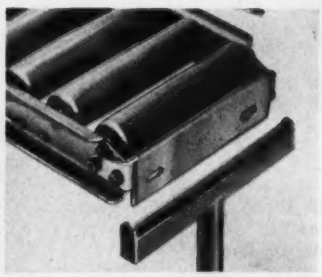
"Vosstex Belting" catalog is issued by Voss Belting and Specialty Co., 5645 N. Ravenswood Ave., Chicago 26, Ill.

For your copy simply circle 5435 on Reader Service Slip.

End-to-end shifting of conveyors avoided

Features: Speeds set-up of wheel and roller conveyors. Eliminates end-for-end shifting.

Description: With this coupling innovation, both ends of the conveyor sections are identical, with each section

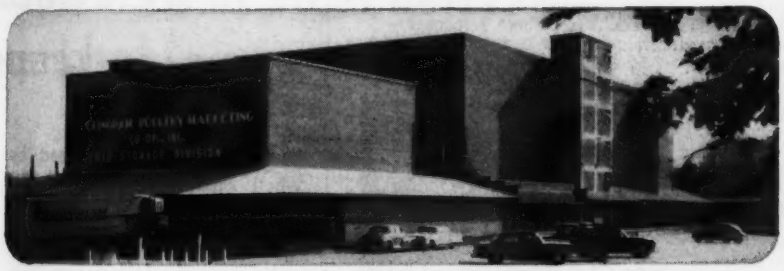


Extended end plates fit top of stand

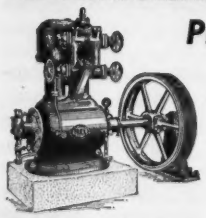
being a complete unit independent from adjoining ones. Extended plates on conveyor ends fit down into slotted tops of the tubular stands. The latter are actually the coupling elements. Coupling is available for both straight and curved mobile sections. Conveyor stands are built in four standard sizes to provide adjustable heights from 12" to 48". Stands raise and lower for desired conveying slope.

"Quick-Eez" coupling is available from E. W. Buschman Co., Clifton and Spring Grove Aves., Cincinnati 32, Ohio.

For more information circle 5436 on Reader Service Slip.



Processing 36,000 Chickens A Day—



Thirteen Frick compressors serve the Rockingham Co-op.

The Rockingham Poultry Marketing Co-op., Inc., has six buildings in its great plant near Broadway, Va.

Frick refrigeration has aided the growth of the plant for 20 years in a wide variety of ways —cooling numerous storages to different temperatures, quick-freezing poultry and other products, making 50 tons of ice daily, and doing air conditioning.

What is YOUR special cooling problem? Let Frick Engineers aid you in solving it now. Write, wire or phone

Frick-freezing tunnel at Broadway, Va.

DEPENDABLE REFRIGERATION SINCE 1882
FRICK CO.
WAYNESBORO, PENNA., U.S.A.

5434 on Reader Service Slip

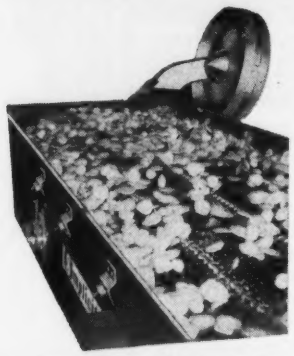
A GREAT NAME IN LIFT TRUCKS
HydroElectric
This powerful Electric Tractor hauls one or multiple units with speed, safety and ease of operation.
features THE EXCLUSIVE
DYNA-DUAL POWER UNIT
Power enough to pull loads of 6000 lbs. or more at low cost.
Write for Bulletin KT
LIFT TRUCKS, INC.
CINCINNATI 14, OHIO

5437 on Reader Service Slip

SIMPLICITY

new developments in food screening

INFORMATION ON PROCESSING FOOD AND WASTE PRODUCTS



PICKLE SLICES—1% REJECTS

The 3′ x 8′ Simplicity 2-deck Pickle Screen was developed for both slices and relish. Bottom decks can be either a solid pan or screen cloth, with top deck opening to suit individual needs. The screen cloth is very effective for seed removal in relish stock.

One large operator reported that, after installing this screen, rejects dropped from six per cent (the average with hand picking) to one per cent or less with the Simplicity! Production is 135 bushels per hour, and can be further increased by use of spray bars. Available in several sizes, these screens are "a must" for producers who want to improve their product.

SIMPLICITY SCREENS DEWATER 3-4,000 LBS. VEGETABLES HOURLY

A major producer of frozen foods uses this 3′ x 8′ Model "C" single deck screen to dewater 4,000 pounds of corn per hour, using a hydro-pump with a capacity of 250 gallons of water per minute.

The stainless steel wire cloth deck has longitudinal slotted openings of 1/10″ x 1″. The same producer also uses this screen to dewater 3,000 pounds per hour of field run peas. The screen removes excess moisture from these products so effectively, that they are fed directly from the screen to a freezing belt.

SCALPING OVERSIZED MATERIAL FROM POWDERED COFFEE BRINGS ORDER FOR 2ND SIMPLICITY MACHINE

A large instant coffee producer is using a Model OA-10-52 3′ x 10′, totally-enclosed single deck flat screen for scalping oversize material from the product. The powdered coffee, weighing 15# per cubic foot is screened at a rate of 6,000 pounds per hour on the 14-mesh stainless steel deck. This machine proved so satisfactory that the company ordered a duplicate unit.

The Simplicity flat screen can be used for handling many food products, and is easy to clean. The two-shaft, oscillating assembly gives a positive feeding action, even if the screen is set on the horizontal.

Available in many sizes and models; you'll find one just right for your screening problem. Write today for details.

199

FOR THAT SEWAGE PROBLEM

Above is a typical Simplicity sewage screen installation. These screens are being used by food manufacturers throughout the United States for removing solids from their waste water. With the sewage problem increasing steadily, it will pay you to investigate these low-cost, low-maintenance units.

There is a unit size manufactured to suit every need, large or small. The 2′ x 3′ Model "C" will handle 250 GPM, a 2′ x 6′—400 GPM, a 3′ x 6′—600 GPM, and the 3′ x 8′ will handle from 800 to 1,000 GPM. Stainless steel cloth with 20, 30 or 40 mesh openings can be installed at customer's request.

Write for information on any of these pieces of equipment or for Bulletin FC-3

SIMPLICITY ENGINEERING COMPANY, DURAND 6, MICHIGAN

SALES REPRESENTATIVES IN ALL PARTS OF THE U.S.A. • FOR CANADA: Simplicity Materials Handling Ltd., Guelph, Ont. • FOR EXPORT: Brown and Sites, 50 Church St., N.Y. 7, N.Y.

5438 on Reader Service Slip

Automatic ali keeps wo

Positive tracking maintained by v-belt sheave permits alignment of adjacent tables and conveyors with fraction of inch clearance

Versatility of modern stainless belts permits their incorporation in many types of food handling equipment. Illustration shows work table at Ottman & Co., New York City, used in packaging meats for hotel trade. Design features of this table provide the sanitary advantages of steel belt conveying plus positive permanent alignment.

V-rope bonded to underside of steel band (see photo) provides positive guide and drive. Standard v-rope sheaves are used in place of conventional pulleys. V-rope running in sheaves maintains positive tracking at all times and simultaneously provides traction for the belt drive. Wear

Positive tracking of stainless work table belt speeds packaging of institutional meats

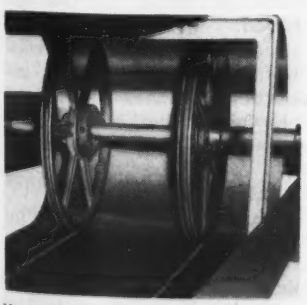
alignment of steel belt work table operating smoothly

of belt edges is minimized, and frequent adjustment inspections are avoided by automatic alignment. Of particular advantage where related operations require smooth, fast transfer is the ability of units using this type of drive to be placed within a fraction of an inch of adjacent tables and conveyors. This facilitates on-and-off side handling.

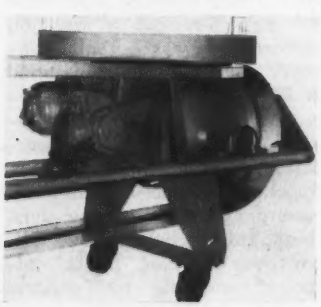
Additional operating and maintenance economies are provided by non-stretch properties of steel belts, even in installations of great length. Also the use of standard sheaves eliminates the need for individually adjusted bearings and guide rollers.

"Tru-Track" steel belt conveyors and work tables are built by Sandvik Steel Inc., 1702 Nevins Road, Fair Lawn, N. J.

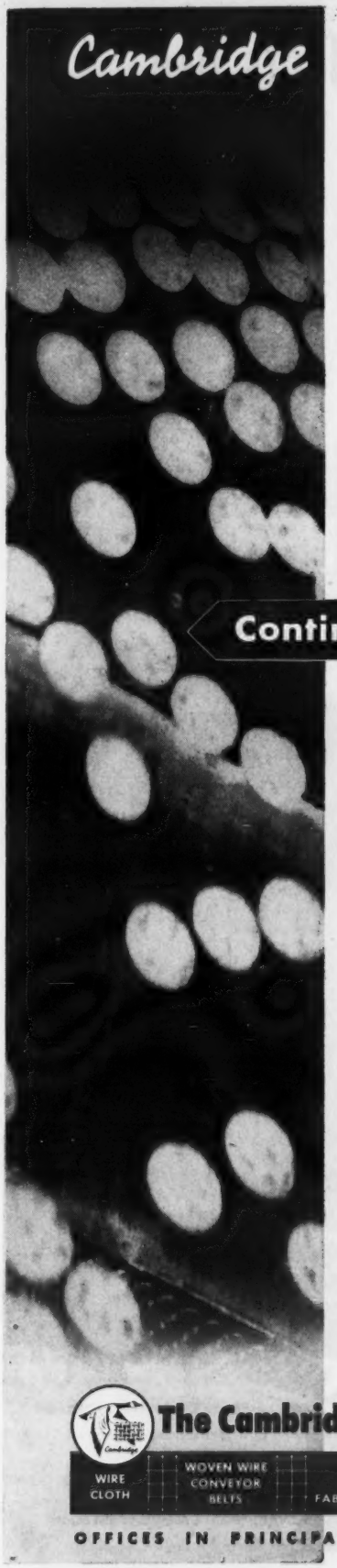
For more information circle 5439 on Reader Service Slip.



View shows typical application of v-rope sheaves in tension end of steel belt conveyor



View of a mobile conveyor unit shows how a narrow belt may be driven with single v-rope on underside



Wire Mesh Belts

give you continuous, low-cost processing, greater uniformity

Whatever the type of product you are processing, moving it on continuous, wire mesh belting through each operation will help increase product uniformity, cut operating costs, reduce manual handling and maintain sanitary requirements. Baked goods, meats, vegetables, fruits or candy are baked, cooked, cooled, washed, blanched or frozen faster and with a minimum of waste or damage. EXAMPLE:

Continuous Baking

WIRE MESH BELT carries thousands of crackers through oven in a continuous stream. Open mesh permits heat to circulate freely around product, giving greater uniformity. Crumbs or waste particles fall through, keeping belt and foods contamination-free.

ALL METAL BELT remains impervious to high or sub-zero temperatures, cannot absorb odors . . . is unaffected by washing or blanching solutions. Rust-proof stainless steel alloys maintain sanitary requirements.

WOVEN WIRE CONSTRUCTION gives longer wear because there are no seams, lacers or fasteners to weaken or break.

SPECIAL CROSS FLIGHTS or raised edges are available to hold product on belt during flat or inclined travel.

Cambridge Wire Mesh Conveyor Belts are made in any size, mesh or weave, from any metal or alloy, and can be used under a wide range of conditions . . . hot or cold, wet or dry. Call your Cambridge Field Engineer to discuss how you can get continuous, low-cost processing and greater product uniformity on woven wire conveyor belts. Look for his telephone number under "Belting, Mechanical" in the *Yellow Pages*. Or, write for FREE 130-PAGE REFERENCE MANUAL.

The Cambridge Wire Cloth Co.

WIRE CLOTH | WOVEN WIRE CONVEYOR BELTS | WIRE CLOTH FABRICATIONS

Department H,
Cambridge 10,
Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

5440 on Reader Service Slip

do you move products like Romans built the Tower of Pisa... by hand?

READING TIME 15 SECONDS

The Leaning Tower of Pisa is quite a curiosity. But as an engineering feat it's a mess!

When companies turn to automation to increase their profits in today's competitive markets they call on the best conveyor engineers—Lamson engineers.

The automatic systems illustrated not only look good, but pile up dividends.

(WATKINS GLEN, N. Y.) This new *low-cost* Model G Automatic Pallet Loader is speeding shipments while improving working conditions, and has reduced production costs in this highly competitive market.

LAMSON

LAMSON CORPORATION
253 Lamson St., Syracuse 1, N. Y.
Plants in Syracuse and San Francisco
Offices in Principal Cities

Please Clip to Your Letterhead

- ☐ Have an engineer call me for an appointment
- Send me these bulletins:
- ☐ "Conveyor Facts"
- ☐ 28-page Roller Gravity Bulletin
- ☐ "Model G Automatic Pallet Loader"

253

5441 on Reader Service Slip

Odorless, tasteless, non-toxic belt has synthetic rubber cover for easy cleaning

Slick surface, eye-saving color speed removal of culls from belt

Inspection conveyor at Blakely Peanut Co. handles nearly 12 tons of nuts per day. Belt's oil resistance cuts maintenance downtime

Conveying 12 tons of peanuts a day through inspection for cull removal is the job performed by the belt conveyor pictured here. Installed at Blakely Peanut Co., Blakely, Ga., it handles nuts supplied to confectionery manufacturers and peanut packers. Special resistance to oil is an essential feature of the synthetic rubber belt used in this conveyor. Other belts, although suitable for general service, quickly became saturated with oil, making clean-up job difficult and time consuming. Discoloration and markings could not be removed.

Finish of the belt contributes to efficiency of the inspection operation performed by women workers, as slick surface aids pick up of nuts that must be removed to maintain uniform quality. Belt's green color is easy on the eyes and makes it simpler to spot culls that must be picked out.

Construction of belts of this type for food handling utilizes special synthetic rub-

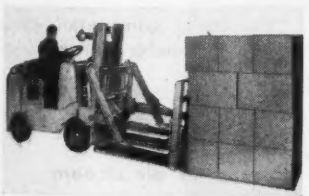
ber covers over lightweight duck carcass. This contributes to flexibility over small pulleys. Where temperature extremes are a factor, performance range of sub-zero to 212°F is an advantage. Edges are treated to prevent entrance of moisture. Other colors for special service requirements include white, which is particularly suitable for meats, and burnt orange, used for vegetables and bakery items.

Little Giant conveyor belting for food handling is made by United States Rubber Co., 1230 Avenue of the Americas, New York 20, N. Y.

For more information circle 5442 on Reader Service Slip.

54" stroke side shifter for palletless handling

This 54" stroke side shifter lift truck attachment permits fast, precise palletless handling of a wide variety of food



Unit for lateral positioning

products. Attachment is actuated hydraulically for unit loading and lateral positioning. Available for trucks in this line from 2,000 to 7,000 lb capacity.

Trucks with side shift Towloader attachment are built by Towmotor Corp., 1226 E. 152nd St., Cleveland, Ohio.

For more information circle 5443 on Reader Service Slip.

Speeds Up Crop Handling From Field to Factory

Pallet boxes replace bushel crates to lower operational costs at southern pickle plant. See article in Crop Production and Handling section, page 56.

IT'S NEW

REX® PLATE TOP ROLLER CHAIN

WITH SNAP-ON TOP PLATES OF NYLON

There'll be no more soapy lubricant spots on your bottles and labels when you install the new Rex Nylon Plate Top Roller Chain on your conveyors. Nylon Plate Top runs without lubrication and eliminates this common problem in the bottling and canning industries. And Nylon Plate Top does not wear the plating or paint from the bottoms of cans.

The ride is smo-o-o-th—There's no gap at all between the nylon top plates—actually, they overlap a little. Plate ends are beveled to prevent tipping when conveyed articles are slid on from the side.

The tension is on the chain—The nylon top plates are snapped on to the extended pins of ¾-inch roller chain. This chain, easily disassembled at any link, runs on the standard ASA No. 60 sprocket—a low-cost stock sprocket always quickly available. The tension is on the chain, and the nylon plates bear only the load of the conveyed materials.

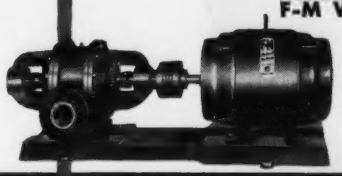
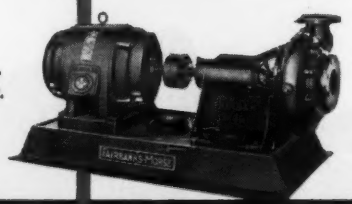
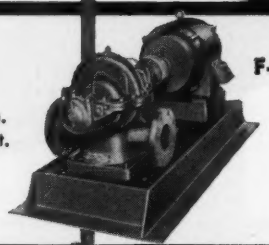
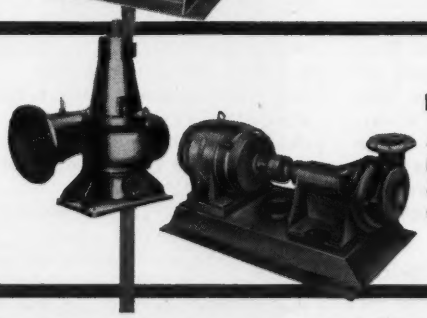
Nylon Plate Top (patents pending) has been field tested in thousands of hours of actual service in breweries and bottling plants. It is the newest member of the great CHAIN Belt family of flat-top and case conveyor chains. Write today for the new bulletin on Rex Nylon Plate Top Chain. CHAIN Belt Company, 4699 W. Greenfield Ave., Milwaukee 1, Wisconsin.

CHAIN BELT COMPANY

Milwaukee 1, Wisconsin

5444 on Reader Service Slip

Guide to better pump selection

for	specify		
boiler feed condensate return hot and cold liquids chemicals refrigerants, etc.	up to 200 gpm. pressures to 900 ft.		**F-M WESTCO PERIPHERAL PUMPS** High pressure at normal operating speeds. Handle widely varying heads with little change in capacity. Sizes 1¼" through 2½".
hot and cold liquids liquid circulation nonviscous liquids boiler feed cooling towers, etc.	up to 900 gpm. pressures to 525 ft.		**F-M BUILTOGETHER CENTRIFUGAL PUMPS** General-purpose, close-coupled pump and motor units mount in any position—horizontal, vertical or angular. Sizes ¾" through 5".
sewage slurries paper stock fruit shrimp vegetables, etc.	up to 30,000 gpm. pressures to 175 ft.		**F-M NON-CLOG PUMPS** Unexcelled for clog-free handling of liquids with solids in suspension. Sizes 2" through 20". Vertical or horizontal. Bladeless or conventional.
water supply plant service booster circulating air conditioning refrigeration chemical liquids boiler feeds, etc.	up to 50,000 gpm. pressures to 700 ft.		**F-M SPLIT-CASE CENTRIFUGAL PUMPS** High, sustained efficiency over wide range of conditions. Low-cost maintenance. Sizes 1½" through 36". Single stage or multistage.
hot and cold liquids chemicals circulating liquids nonviscous liquids cooling towers condenser circulation, etc.	up to 100,000 gpm. pressures to 250 ft.		**F-M END-SUCTION PUMPS** A wide line of rugged, precision-built pumps. Sizes ¾" through 54". Horizontal or vertical centrifugal.

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Need new pumps? Your Fairbanks-Morse Dealer has the world's greatest variety for you to choose from. Need help in selection? Your F-M Dealer and F-M Sales Engineer will help specify the right type, right size pump and driver for low-cost, foolproof operation. Call them today, or write Fairbanks, Morse & Co., Dept. FP-10, 600 So. Michigan Ave., Chicago 5, Illinois.

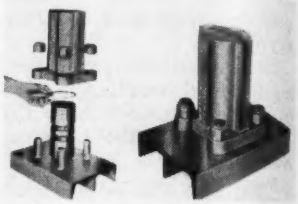
FAIRBANKS-MORSE
a name worth remembering when you want the BEST

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MAGNETOS

5445 on Reader Service Slip

Two part vibrator is 50% lighter

Features: Has only two parts plus base. Weight cut by use of an aluminum cylinder. Two-in. model vibrator is only 60 lb; four-in. unit, 79 lb. Units are permanently lubricated with molybdenum disulfide, (dry film lubricant).



Lightweight vibrator has aluminum cylinder

Description: Steel piston is housed in cast aluminum or semi-steel cylinder block. Assembly is either bolted directly to bin or to base plate welded on bin.

KO-type vibrator is a product of Cleveland Vibrator Co., 2807 Clinton Ave., Cleveland, Ohio.

For more information circle 5446 on Reader Service Slip.

Why 7 food firms convey by air stream

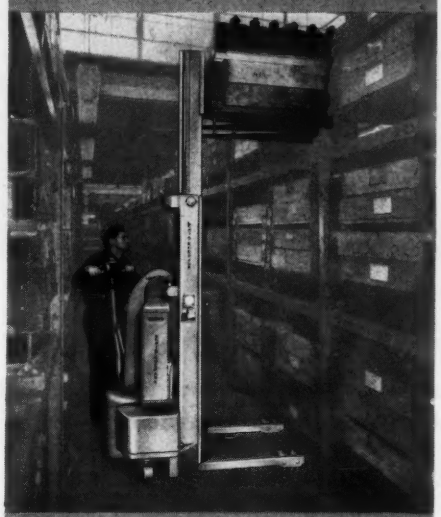
File-size bulletin presents information on how pneumatic conveying has solved bulk material handling problems, including those of seven food processors. Over 70 photos and system drawings are included to show why an air stream can transport granular or powdered bulk materials efficiently and at low cost.

Other than basic load-unload operations, this 32-pg bulletin shows pneumatic conveying to blend, weigh, and package ingredients. Diagrams in color explain three systems of air stream conveying — suction, pressure, and combination of both.

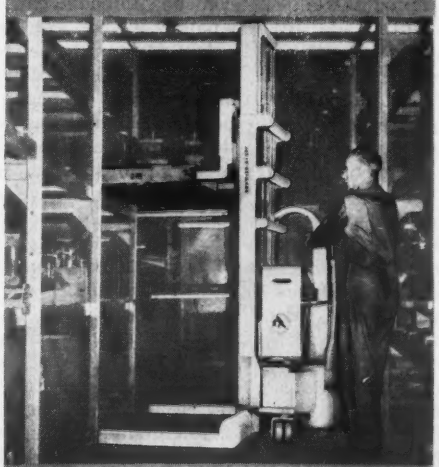
Bul 350 "Airstream Conveyors", is published by Dracco Corp., P.O. Box 1794, Cleveland 5, Ohio.

For your copy simply circle 5447 on Reader Service Slip.

1 **AISLE COMPRESSOR**—Platform Type JackStacker. Operates in 69" aisles (48" long x 40" wide loads). Capacities to 6000 lbs. Lift heights to 150".



2 **NARROW-AISLE WALKIE** — Open-Faced Pallet Type JackStacker. Operates in 69" aisles (48" x 40" long loads). Capacities to 6000 lbs. Lift heights to 125".



3 **HIGH STACKER** — Straddle Type JackStacker. Operates in 72" aisles (48" long x 40" wide loads). Capacities to 6000 lbs. Lift heights to over 200".

4 **AISLE ECONOMIZER** — Riding Type Hydrafork. Operates in 82½" aisles (48" long x 40" wide loads). Capacities to 3000 lbs. Lift heights to 172".

6 ways to narrow aisles... expand your storage or production areas

Each of the space-saving, money-saving Lewis-Shepard Electric Trucks shown here can operate easily in 7-foot aisles, or less

Want to put unused storage space to use? Let the rugged, smooth-operating Lewis-Shepard electrics illustrated here help you. Differing in detail, nevertheless they all have *one thing* in common . . . aisle-saving compactness. By reducing existing aisles, Lewis-Shepard equipment has created thousands of extra cubic feet of storage area without laying a brick.

Beside compact construction, other practical advantages common to L-S trucks include . . . lifetime lubrication, which ends forever the need for greasing; roller masts, eliminating friction wear; gear drive, which means no chains to break — no clutch to wear; magnetic controls, to provide instant speed selection and braking.

Lewis-Shepard, manufacturer of the most complete line of industrial trucks, anywhere, offers you power-tiering equipment in either rider, or walkie types — each a leader in its special field. For catalogs on trucks shown here, mail coupon.

5 **SPACE MASTER** — Model "MR". Operates in 75" aisles (48" long x 40" wide loads). Capacities to 3000 lbs. Lift heights to 158".

6 **COMPACT ANGLER** — Model "M". Operates in 77" aisles (48" long x 40" wide loads). Capacities to 4000 lbs. Lift heights to over 200".

Use coupon below for further information on narrow-aisle trucks.

For more information on product at right, circle 5448 . . . see information request blank opposite last page.

MULTIPLY MANPOWER LEWIS-SHEPARD

LEWIS-SHEPARD

"The Master Line"

3710 Walnut Street, Watertown 72, Mass.

NAME.....

COMPANY.....

ADDRESS.....

LINK-BELT
liquid vibrating screens

FIBROUS SOLIDS are removed from beet waste water by Link-Belt screen at a Midwest cannery. Water is used for spray irrigation.

Separate solids from waste water at low cost

More and more food processors are turning to Link-Belt liquid vibrating screens for efficient, low-cost reclamation of solids . . . for reduction of stream pollution. Their high-intensity, accurately controlled vibration permits fast, effective separation of solids from large volumes of liquid without blinding—can be easily adjusted to meet varying conditions. Write for Book 2377-A.

LINK-BELT

LIQUID VIBRATING SCREENS 14,624

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7.

5449 on Reader Service Slip

"Our Clark Prest-O-Matic® Door helped us in Expediting Traffic" says Belford Seabrook, Operating Vice President of Seabrook Farms

A big feature is—this fully automatic door speeds traffic. Another advantage, cited by Belford Seabrook is the Clark Door eliminates costly open-door-time and helps maintain critical temperatures.

Many outstanding companies, such as Birds Eye, Borden, General Foods, Minute Maid and other leading firms in the frozen food field, have installed Clark Prest-O-Matic Cold Storage Doors and have received the same important benefits.

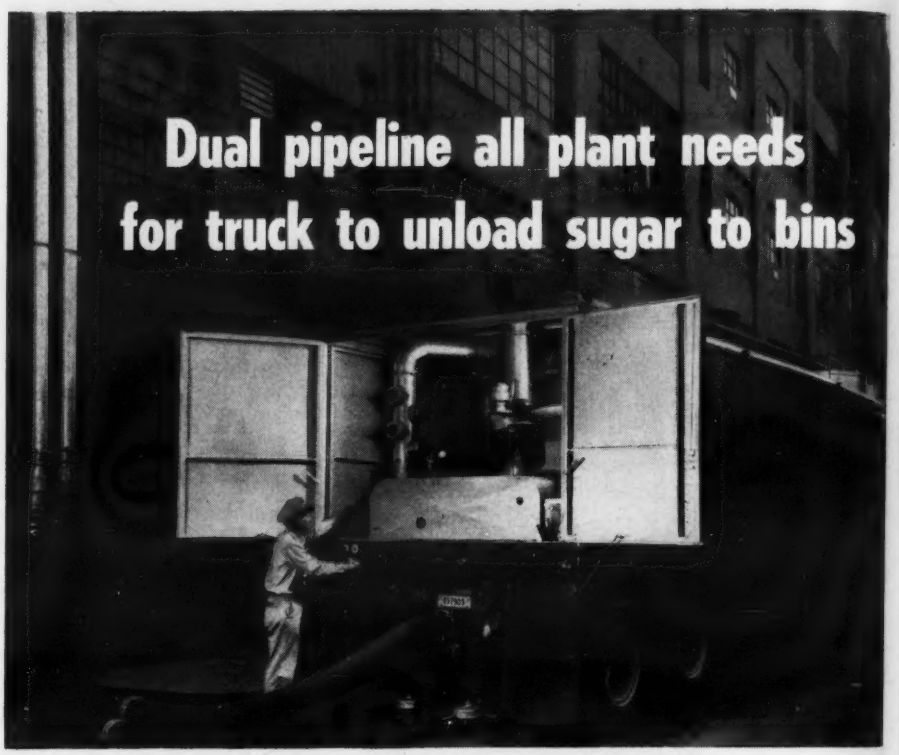
Clark Prest-O-Matic Cold Storage Doors are a complete packaged unit which includes the doors, operator, frame, all hardware and controls.

WHY NOT GET THE FACTS NOW?
A letter will bring facts about the many advantages of the famous Clark Cold Storage Doors.

CLARK DOOR COMPANY

504 Hunterdon St., Newark 8, N. J.

5450 on Reader Service Slip



Expensive receiving systems eliminated
Operation is fast, dustless in delivering shipments of 10,000 to 30,000 lb

Sugar is now being delivered in trucks which transfer 30,000 lb cargoes direct to customer's bin in 45 minutes by means of a dual pipeline (one for receiving — one for air return). The piping installation is the only investment made by plant management to take advantage of this method of bulk sugar delivery.

Just 7½ lb of pressure, supplied by truck's own compressor, moves sugar through the lines any distance up to 150', vertically, horizontally, or in a combination of directions. Photo shows one of the first of these trucks making delivery at Louis Sherry company plant in New York. Sanitary, quick-coupling rubber hose is used in making necessary connections. Note the pipeline runs up the side of the 6-story building to bin on roof.

The special transport body is 33' long, 8' wide, and is divided into five sections. Three of these are stainless steel bins with capacity of 10,000 lb each. Fourth unit is dust collector, fifth, compressor.

Here's how unit operates in making a delivery. After connections have been made, pressure is turned on and sugar flows through bottom outlets of bins into pipe extending lengthwise along bottom of truck. As one, two, or all three bins can be unloaded at any delivery stop, smaller buyers can be served.

In designing delivery system, such problems as breakdown of sugar crystals and removal of sugar dust were anticipated. The first was worked out by first determining and then maintaining correct pressure to sustain constant flow with a minimum of abrasive contact. As the system is entirely enclosed, airborne sugar dust is returned to dust collector. Amount of such dust is generally held to less than 1%. This reduces caking-up in bins.

Bulk sugar delivery with blower truck is a new service of American Sugar Refining Co., 120 Wall St., New York, N.Y.

For more information simply circle 5451 on Reader Service Slip.

Pneumatic equipment developed in conjunction with Fuller Co., Catasauqua, Pa.

For more information simply circle 5452 on Reader Service Slip.

All types of grease fittings filled by bucket pump

Portable bucket pump features an "adjusto-lever", making it easy to pump either oil or grease in coldest weather and at pressures of 2500 to 5000 lb. All types of fittings on industrial, automotive, and agricultural equipment may be served by seven models.

Oval design of bucket makes it easy to carry

Lubricant capacity is 35 lb. A dynamic primer insures constant delivery, and a foot valve assures full pressure at every stroke. One wrench disassembles the entire unit.

Portable bucket pump is a product of Alemite Div., Stewart-Warner Corp., 1826 Diversey Parkway, Chicago 14, Illinois.

For more information circle 5453 on Reader Service Slip.

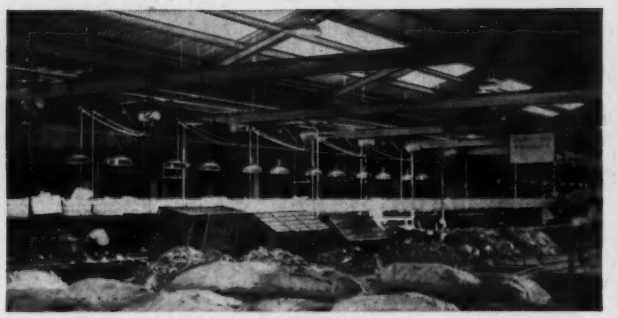
Test refrigerator car frozen food shipments

A USDA Marketing Research Report is based on a comparative study of two types of mechanically refrigerated rail cars and a simple water-ice and salt refrigerated car hauling packaged frozen corn from Waseca, Minn., to Jersey City, N. J. Performances are measured in terms of precooling time, air and commodity temperature within cars, and out of pocket refrigeration costs.

USDA Market Research Report 182 is available for 20c from The Superintendent of Documents, Wash. 25, D.C.

Butler building combines offices, warehouse and loading area for fast, efficient storing and shipping of food products.

The Butler rigid frame provides unobstructed interiors. Stack your products from wall to wall, from floor to roof peaks.



Butler canning shed with horizontal steel beams added to support the electric hoists that carry produce to the conveyor.

Produce it...store it...ship it
more efficiently with **Butler** *buildings*

Butler buildings are spacious, functional—ideal for the efficient production, storage and shipping of food products. Butler's flexibility of usage provides you with low-cost field storage, safe, sanitary warehousing and efficient refrigerated storage. The spacious, post-free interiors give you a plant with complete freedom so you can arrange your production lines any length, any width for maximum efficiency.

Whether your Butler building is to be large or small, all metal or partially conventional building materials, it offers you these advantages: fast erection, easy, economical expansion . . . truss-free gables and post-free interiors up to 100 feet wide . . . fire-safe, wind-safe, vermin-proof . . . economical to heat, ventilate, illuminate and maintain.

For the full story on the Butler method of construction—the lowest cost way to build well—phone your Butler Builder. He's listed under "Buildings" in the Yellow Pages of your phone book. Or write direct.

BUTLER STEEL PRODUCTS

BUTLER MANUFACTURING COMPANY

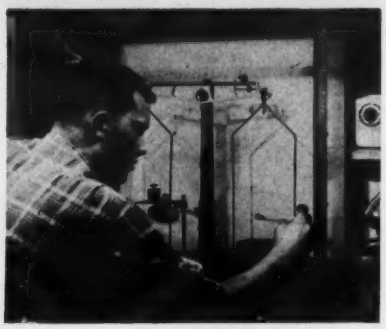
7479 East 13th Street, Kansas City 26, Missouri

Manufacturers of Buildings • Oil Equipment • Farm Equipment • Dry Cleaners Equipment • Outdoor Advertising Equipment • Custom Fabrication

Sales offices in Los Angeles and Richmond, Calif. • Houston, Tex. • Birmingham, Ala. • Atlanta, Ga. • Minneapolis, Minn. • Chicago, Ill. • Detroit, Mich. • Cleveland, Ohio New York City and Syracuse, N.Y. • Washington, D.C. • Burlington, Ontario, Canada

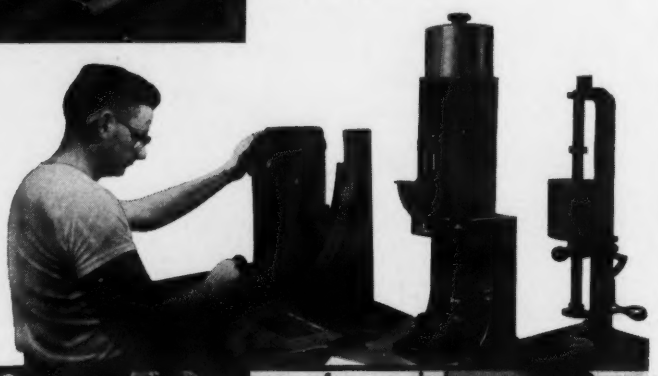
5454 on Reader Service Slip

Links in the chain of quality control at Moline...



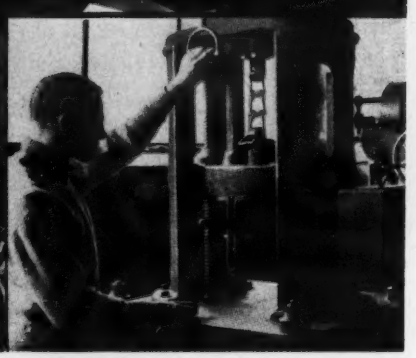
Testing the sand for moisture control and screen analysis are the first steps in Moline's rigid quality control system scales.

Charting the sand test for permeability and green compression strength maintains strict Moline standards for finest finishes and tolerance.

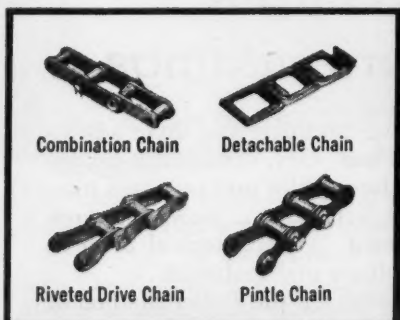


Analyzing the iron for rigid control over carbon, silicon, manganese, sulphur, and phosphorus.

Gauging link by link and visual inspections to hold minimum tolerance is a test done exclusively by Moline.



Physical testing of links from each days production insures Moline's high standards for yield and tensile strengths.



Pitch testing of assembled chains includes limbering over sprockets and stress testing for strength and soundness.

Shock testing by critical inspectors means stressing each chain to proof strength and shock tested with hammers.

Moline Conveyer Chains

LEADER FOR 60 YEARS

MOLINE MALLEABLE IRON COMPANY
St. Charles, Illinois
Specialists in the manufacture of chains

For Conveying, Elevating and Power Transmission

5455 on Reader Service Slip

Wheel platform simplifies under hood repairs

A mechanic's wheel platform accommodates all trucks carrying tire size 825 to 1122, or weighing 2½ tons and over. Furnished with heat-treated hook straps and plywood step, "non-skid" coated. Slips over tire quickly and securely. Assures mechanic comfortable

Fits trucks with tires 825-1122, or 2½ tons and over

position for under hood service work. Comes complete in carton with necessary hardware. Assembles with six bolts and nuts. Steel straps and platform drilled to accommodate bolts. Shipping weight 16 lb.

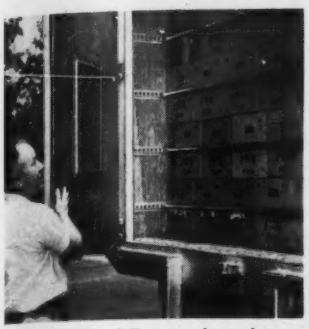
Mechanic's wheel platform No. WT-2 is available from Arn-Wood Co., 610 W. Colfax, Denver 4, Colo.

For more information circle 5456 on Reader Service Slip.

Stabilizes trailer loads, protects roll-up doors

System of rods and anchor strips provides tight lock

Cases and other cargo are securely held by stabilizing rods that are quickly anchored in holes on supporting rails. Rails are installed lengthwise in trailers or trucks at the most suitable levels. Damage to roll-up doors is avoided, and cases can't fall out when doors are opened. Rods also



Load can't fall out when door opens

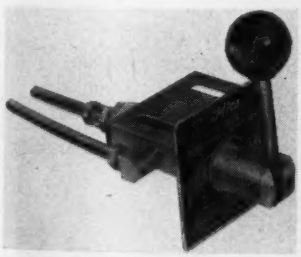
facilitate separating less-than-trailer loads. Plywood sections can be screwed directly onto the cross rods.

Load holder rods are a development of Cargo Stabilizing Devices, 2819 N. Western Ave., Chicago 18, Ill.

For more information circle 5457 on Reader Service Slip.

Holds truck securely while parked

A new hydraulic brake accessory assures positive, recommended brake pressure while vehicle is parked. Device is simple to install. It works on all automotive (and truck) systems regardless of



Raise lever, step on pedal to lock brake

make, model, year, or capacity. Manually operated, it does not interfere in any way with normal brake operation.

To set, operator raises lever and steps on foot pedal. This supplies safe holding power, even for heaviest load.

Mico lever lock is a product of Minnesota Automotive, Inc., 1101 N. Front St., Mankato, Minn.

For more information circle 5458 on Reader Service Slip.

Jamison announces flexidor* . . .

NEW flexible batten door

All-neoprene batten door designed for use with power trucks

*Jamison Trademark

Flexidor is light and resilient to absorb and dissipate the shock of impact; reinforced door noses add strength, prevent buckling or wrap around on impact. Free-swinging door suspension provides minimum impact resistance. Jamison two-way gravity cam hinges assure fast closing.

Flexidor is available in a full range of sizes for use in new construction or to replace rigid battens. Complete information is available from the Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON
HAGERSTOWN, MARYLAND, U. S. A.

More JAMISON Doors are used by *more* people than any other Cold Storage Door in the world.

5459 on Reader Service Slip

packaging viewpoint

What's new in products and package design . . . a pictorial presentation . . .

Fruitcake in a frame . . .

. . . is the effect gained by Benson's Baking Co., Athens, Ga., by packaging its 2½-lb, cellophane-wrapped fruitcake in this new, one-piece corrugated box. Die-cut window on one side of box permits customer inspection. The golden embossed finish helps establish impression of product quality, and serves as an attractive "frame" to entice the customer's eye. Box designed and made by Hinde & Dauch Paper Co., Sandusky, Ohio, and Richmond, Va.

"Quick Chick" fills long short-order need . . .

. . . by providing breaded, pre-cooked, poly-wrapped customer portions of young frying chicken. A 3-piece serving, weighing 6, 7, 8, 9, or 10 oz, can be taken direct from freezer, dumped untouched out of bag into deep fryer, and be ready to serve in five minutes. Each bag contains a breast, a wing, and either a drumstick or a thigh. Each chicken part is frozen individually, allowing easy separation. Since product is sold by the serving, user knows exact portion cost. "Quick Chick" pre-cooked, frozen chicken product is development of Ocoma Foods Co., Div. of Consolidated Foods Corp., 810 Farnam, Omaha, Nebr.

Wild rice in a trice . . .

. . . with product that eliminates lengthy washing and pre-soaking. Black Northern wild rice is added to boiling water and allowed to stand 3 min. Product is then ready to use in hot dishes or as fowl stuffing. "Instant" wild rice is development of Park-Erickson Co., 5550 N. Kenmore Ave., Chicago 40, Ill.

First frozen whole beans on retail scene . . .

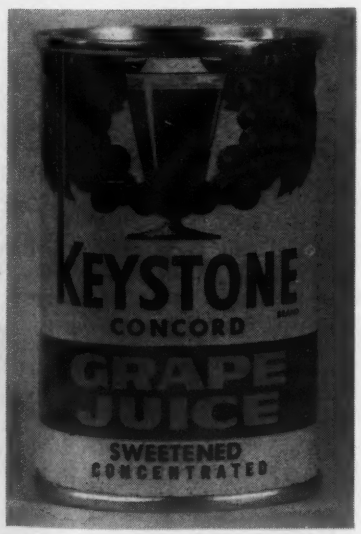
. . . are being offered in 9-oz package to distribution outlets east of the Mississippi. Processor states this is first time frozen whole green beans have been made available at retail level. Package consists of waxed carton overwrapped with aluminum foil which is brightly printed in six colors. Quick-frozen whole green beans are product of Seabrook Farms, Seabrook, N. J. Package overwrap is "Reyseal", supplied by Reynolds Metals Co., 2500 S. Third St., Louisville 1, Ky. Overwrap design by Mel Richman Studios, Inc., 2009 Chestnut St., Philadelphia 3, Pa.

Frozen orange — take 6, they're small . . .

. . . is the message this handy, 6-pack carton subtly flashes at shoppers. Compact carrier answers the consumer's preference for buying a half-dozen cans at once, and eliminates handling the icy surfaces of individual cans. Carton may be quickly stacked in the store freezer, and is printed to permit easy, effective pricing. Multi-pack carrier for frozen, canned orange juice is development of Gair Boxboard and Folding Carton Division of Continental Can Co., 100 E. 42nd St., New York 17, N. Y.

Shipping cartons that tell and sell . . .

. . . are helping promote product in transit, in storage, and on retail floors for Wm. S. Scull Co., Camden, N. J. (lower), and Growers & Packers Co-operative Canning Co., Inc., North Collins, N. Y. (inset). Shipping containers for Boscul nuts feature company logo and shelf-package circus-stripe motif, and give details as to quantity, size, and type of shelf package. Supplier is Stone Container Corp., Eastern Division, Tulip & Decatur Sts., Philadelphia 36, Pa. Container for fresh whole frozen strawberries depicts fruit in two colors in medallion on side panel, also indicates packer, brand, and amount of contents. To insure proper ventilation, box has short flaps and slots in end panels. "Gairlite" frozen strawberry container is supplied by Gair Fibre Drum & Corrugated Box Div. of Continental Can Co., 100 E. 42nd St., New York 17, N. Y.

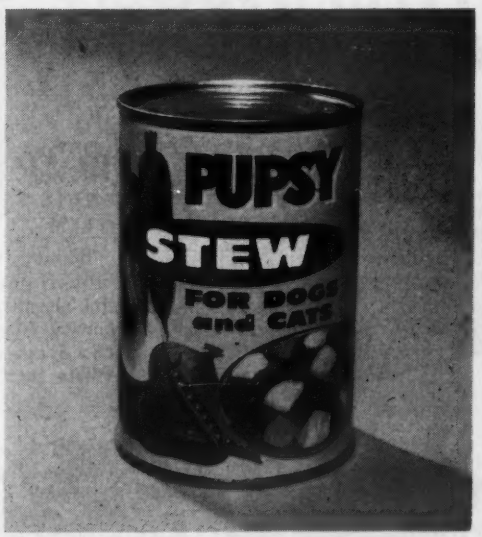


This concentrate is pleasing without freezing . . .

. . . both to consumers who like its taste, and to retailers whose frozen food cabinets are overcrowded. Product, which needs no refrigeration, is prepared for serving by addition of the usual three cans of cold water to contents of the 5½-oz can. No-freeze type of canned Concord Grape Juice concentrate is product of Keystone Cooperative Grape Assn., North East, Pa.

After 84 years, malt in an instant . . .

. . . with new, high-protein instant malt designed to appeal to consumers of all ages. Product represents first major change in 84 years for manufacturer, who reports successful public reaction in a national consumer test. Instant malted milk is development of Horlicks Corp., Racine, Wis. Jars and lithographed closures with price marking space and inner seal are by Owens-Illinois Glass Co., Toledo 1, Ohio. Labels are by Western Printing, Racine, Wis.

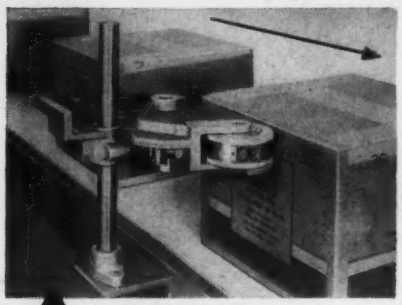


"Pupsy Stew" please: kitty, too . . .

. . . and processor supports his claim with a moneyback guarantee for return of label. New-formula product combines chewy cubes of beef with garden-fresh vegetables, including carrots, potatoes, onions, and others. These are slow cooked in the 15-oz can in their own natural juices. Present marketing is confined to Midwest grocery stores. "Pupsy Stew" is development of Woodard Foods Co., Inc., 5009 Excelsior Blvd., Minneapolis, Minnesota.

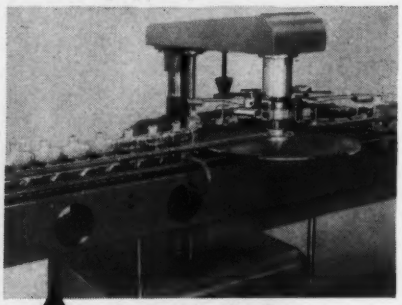
Coding Problem?

There's a Gottscho automatic code-dating machine for every package, every purpose



Side-Coder

This low-cost, friction-driven marker attaches to case-sealer, conveyor, etc. . . . imprints codes, lot numbers, varieties, other legends on side of cartons, cases, drums, filled bags. Model shown (ROLACODER "500" MARKER) codes side and front simultaneously . . . other models code side only or side and rear.



Bottom-Coder

This portable, space-saving unit imprints codes on bottom of jars, bottles, cans, etc. as part of an existing production operation. Imprint surface may be flat or concave, flush or recessed. Wheels right up to the line, can be moved about at will. ("Model TB" MARKO-CODER IMPRINTER).

Other standard *Gottscho* imprinting machines available for top-coding, label-coding, wrapper coding.

Submit details of your coding problem for appropriate literature and our recommendation.

Gottscho

ADOLPH GOTTSCHO, INC.

Dept. V, Hillside 5, N. J.

In Canada: **RICHARDSON AGENCIES, LTD., Toronto & Montreal**

Automatic Production-Line **CODING, MARKING, IMPRINTING MACHINES**

5460 on Reader Service Slip

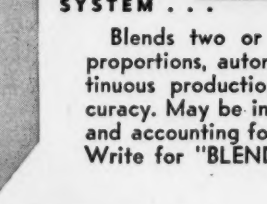
Automated

LIQUID compounding packaging accounting

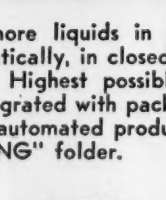
BOWSER BLENDING SYSTEM . . .

Blends two or more liquids in preset proportions, automatically, in closed, continuous production. Highest possible accuracy. May be integrated with packaging and accounting for automated production. Write for "BLENDING" folder.

Repeating dial delivers predetermined, repeating quantities automatically.



Predetermining dial delivers quantities up to 10,000 gallons, then shuts off.



Recording printer on meter prints quantity dispensed or received for accounting.

BOWSER ESTABLISHED 1885

BOWSER, INC., FORT WAYNE, IND.

1304 E. CREIGHTON AVE.

5461 on Reader Service Slip

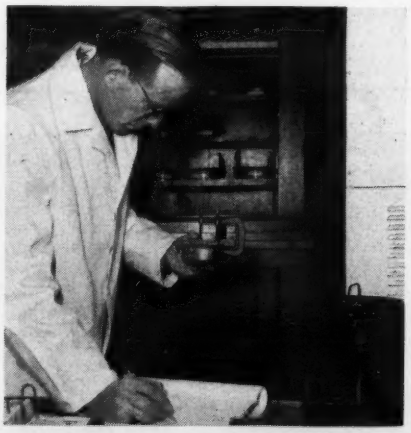
Custom-formulated phenolic keeps low pH product

Helps eliminate formation of mold, discoloration for indefinite period — minimizes "returns"

PHILIP W. ORTH, JR., Treasurer
Philip Orth Company, and
HAROLD R. COLWELL, Director
Advertising and Market Research
Vulcan Containers Inc.

Problem: Packaging a food product having a pH of 2½ to 3, a degree of acidity that will cause development of mold and discoloration within as short a period as a week to ten days, makes proper container selection of utmost importance.

The lemon pie filling manufactured by Philip Orth Co., 304 E. Florida St., Milwaukee, offered just such a problem. On the basis of such considerations as sanitation, economical quantity necessary to ship, weight of product, high citric acid content, and desired long shelf-life, a steel shipping pail — 5 gal, full open head, with dish cover and ring-seal closure — was found to be necessary. There still remained the problem of finding a



◀ Reviewing "test cups" at Vulcan Containers. After special interior linings are formulated to withstand reactions with particular products, small test cups are coated with lining, product added, and cup sealed. Lining is considered proved when it has held product successfully a minimum of 6 mo or equal to the time the product will be in storage

Filling specially lined 5 gal pails with highly acid lemon pie filling at Philip Orth plant. Note easy ▼ stacking feature

pail lining factory-fresh

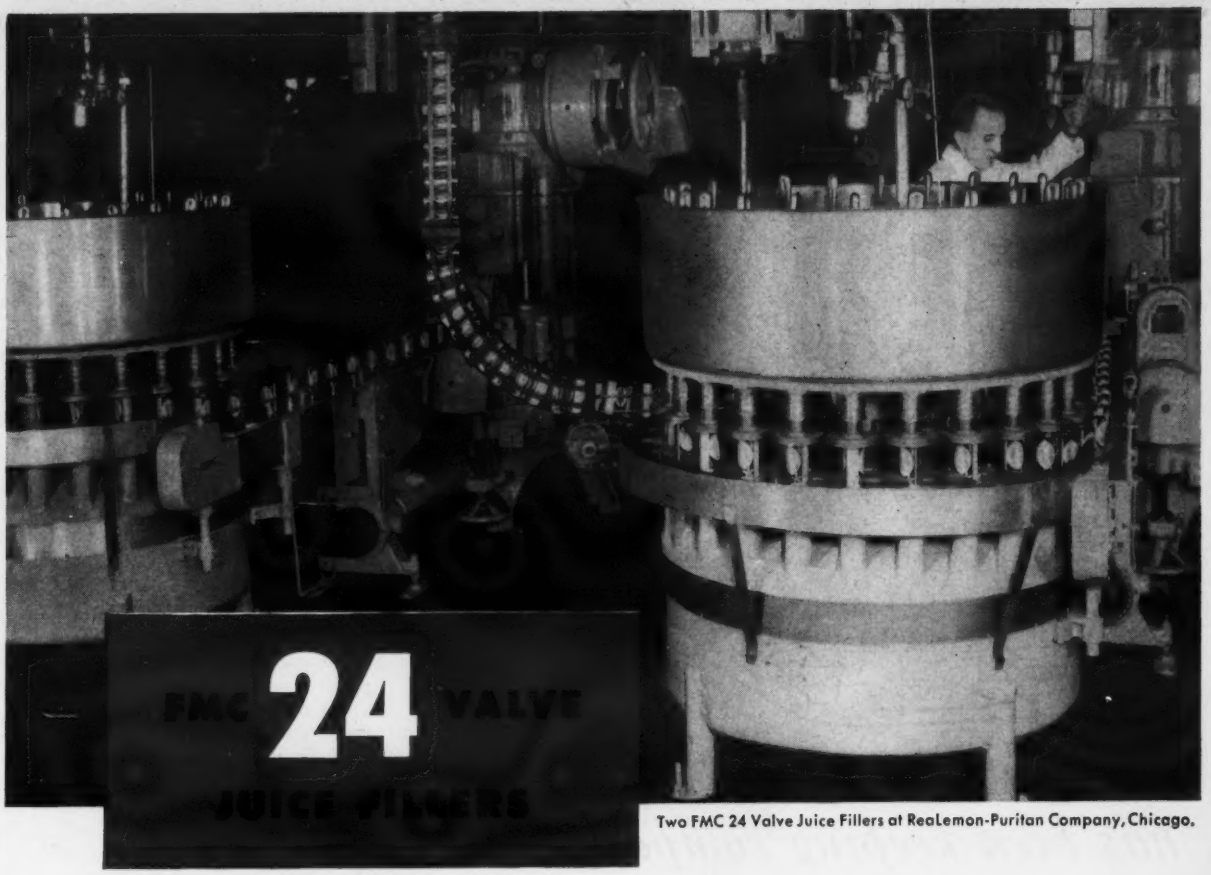
Special "gun" automatically applies an even coating of modified phenolic lining to pail interior. Exterior white coating, applied earlier, is sprayed on while pails pass through an electric field, assuring even paint distribution

container with the proper protective interior lining to meet the rigid stability requirements.

Solution: In 1953, Vulcan readily accepted the challenge, and extensive laboratory investigation was started. After several months of experimenting with, and testing of many possible interior linings, a hi-bake modified phenolic lining was recommended. Next came a series of tests by Philip Orth Co. to duplicate actual production, shipping, field, and customer conditions. These tests included having the filled container make actual trips to predetermined destinations and return. It was deemed necessary to thus take into consideration the handling procedures of purchasers, as well as truck and rail handling methods, because the product is shipped via all types of carriers to regions where all possible climatic conditions exist.

Result: The 5 gal steel pail with the hi-bake interior lining has helped eliminate Orth's primary problem of

(*Continued on next page*)



Two FMC 24 Valve Juice Fillers at ReaLemon-Puritan Company, Chicago.

Upped Production 15% at ReaLemon on Canned Concentrates and Single Strength Juices

The popular FMC 24 Valve Juice Filler is designed specifically for high speed filling of concentrates and single strength juices, as well as other free-flowing liquids.

A wide selection of valves is available for handling any can size from 6 to 46 ounces. Capacities range up to 450 cpm on 6 ounce cans.

One of its many exclusive features is the FMC Automatic Lubricator, which pressure-pumps oil through an adjustable timing device to all key points. This does away with hand oiling, missed lube points, or any dripping, contaminating oil.

Smooth operation is provided by belt feed and worm timer to the feed turret, and by the tangential takeoff. Individual can lift tables open filling valves, acting as a "No can—No fill" device to eliminate spillage and waste. Level of fill is quickly set to the *exact headspace desired* by "micro-adjustment" controls on each valve.

Rigid and durably constructed, the machine's product contact parts are all of stainless steel, with the special bowl spun of stainless rather than welded.

The FMC 24 Valve Juice Filler is also available as a Syruper with a change of valves. FMC-M&S positive displacement Fillers are recommended for filling frozen juice concentrates.

Write for full information, or call your nearest FMC representative.

OTHER FMC FILLING EQUIPMENT

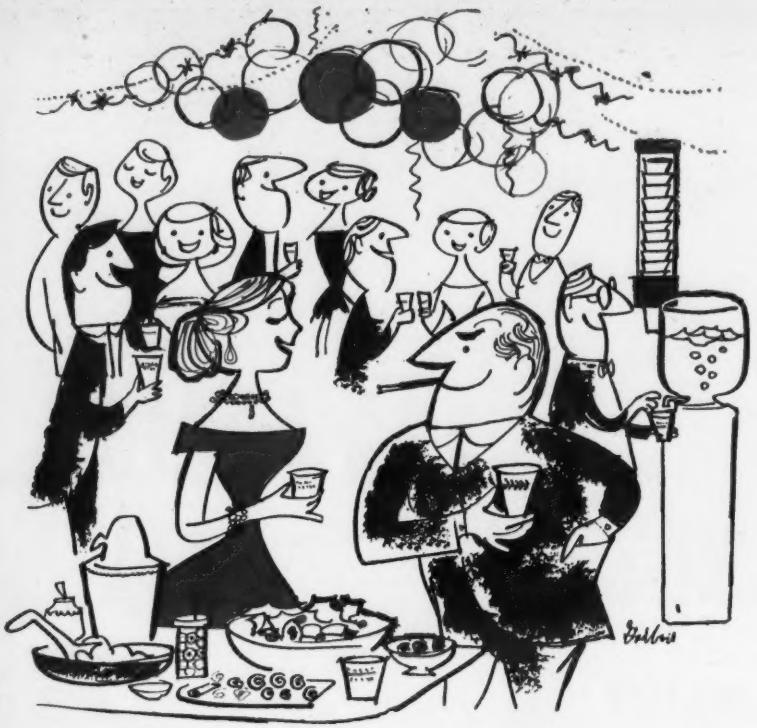
- FMC Pea and Bean Fillers
- FMC-M&S Plunger Type Fillers
- FMC Frozen Food Carton Fillers
- FMC Hand Pack Fillers
- FMC Syrupers
- FMC Soup Fillers
- Utility Fillers

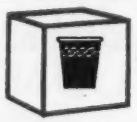
FOOD MACHINERY AND CHEMICAL CORPORATION

Canning Machinery Division

General Sales Offices:
WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

5462 on Reader Service Slip



Hoerner Boxes, Inc.
has been keeping company with
Dixie Cups
for  *9 years . . .*

Dixie Cups in handy home dispensers really cut down the number of extra glasses that have to be washed. And have you noticed that every Dixie Cup you use is uncrushed? Part of the reason for this is that Dixie Cups travel from the plant to the grocer's shelves in Hoerner corrugated containers.

Now, if we may dispense with formalities, we'd like to suggest Hoerner corrugated shipping containers for your product. Call in a Hoerner Packaging Engineer. He can show you how to cut down on extra and unnecessary shipping costs.

Call or write the office or plant nearest you.

HOERNER BOXES, INC.

GENERAL OFFICES—600 Morgan St., Keokuk, Iowa • PLANTS—Keokuk, Des Moines and Ottumwa, Iowa Sand Springs, Oklahoma • Minneapolis, Minnesota • Fort Worth, Texas • Sioux Falls, South Dakota Fort Smith and Little Rock, Arkansas • Cajas y Empaques Impermeables, S. A., Mexico City D.F., Mexico

5463 on Reader Service Slip

Pail Lining

(*Continued from preceding page*)

mold and discoloration. It also has helped simplify the filling operation. After manufacture, the pie filling is permitted to come to room temperature — actually about 60° to 70°F. The steel pail is then filled, a micro band of parchment is placed over the opening, and the cover with the ring-seal closure is quickly and safely crimped to make a liquid-proof and airtight package.

Although the company cannot estimate in dollar value the product savings achieved through use of this type container, they state that results have been highly satisfactory during the four years they have used this specially lined pail.

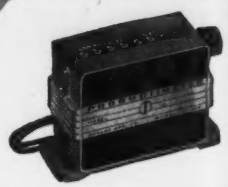
Its slightly higher cost over the container previously used, they feel, is more than compensated for by the processing economies it permits, product freshness, customer good will, and complete assurance that the product will arrive in perfect sanitary condition, ready for use at any time by the baker.

Hi-bake modified phenolic lined pails are development of Vulcan Containers Inc., Congress Expressway and Mannheim Rd., Bellwood, Ill.

For more information circle 5464 on Reader Service Slip.

"Tough night, Herb?"

Count ALL PRODUCTION *with accurate, dependable* **DURANT PRODUCTIMETERS**



ELECTRIC COUNTER

HEAVY DUTY STROKE ACTION

BOTTLE AND CAN COUNTERS

CASE COUNTER

Eliminate profit-eating losses . . . Productimeters register accurate count of every unit processed . . . insure economical plant operation and maximum use of man hours.

DURANT MANUFACTURING CO.

Send for CATALOG 51-55

1951 N. Buffum St., Milwaukee 1, Wis.
51 Thurbers Ave., Providence 5, R.I.
Representatives in Principal Cities

PRODUCTIMETERS SINCE 1879 *Count Everything*

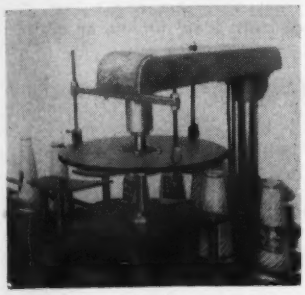
5465 on Reader Service Slip

Codes conical containers as they are conveyed

Imprint is clean, sharp, despite thickness of wax coating

Uses: For imprinting code dates on bottom of waxed, tapered paper containers, while they travel on conveyorized production lines.

Features: Unit is portable and quickly transferred to any point in plant. Operates



Portable coder-dater installs quickly, imprints at speeds to 600 per minute

efficiently at various speeds up to 600 impressions per minute, regardless of whether product flow is regular or intermittent. Even on heavy waxed surfaces, clean, sharp imprints are made from rubber type and fast drying inks.

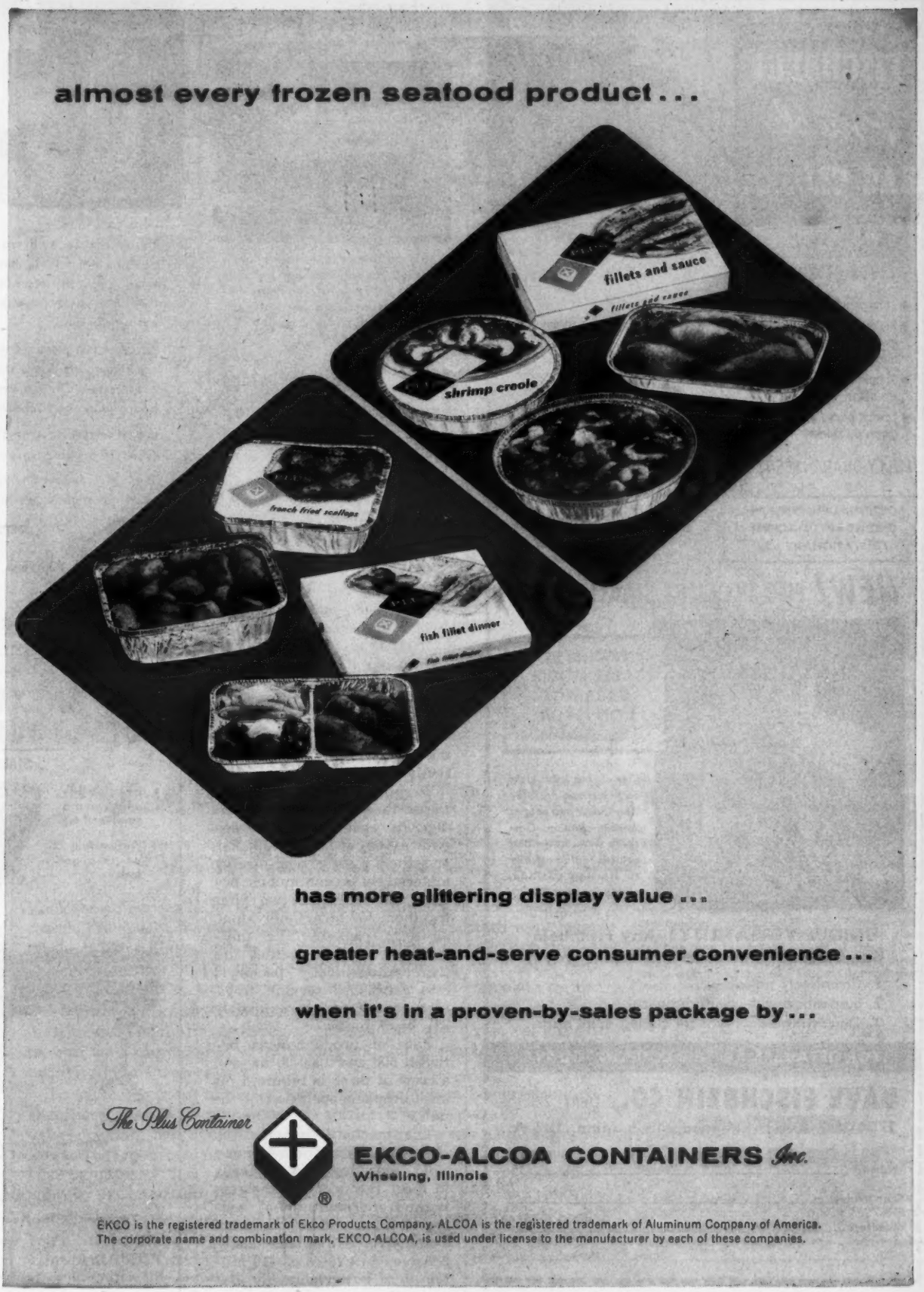
Description: Code marks can be changed quickly by substituting adhesive-backed pieces of type on type-wheel. Change-over from one size container can also be accomplished quickly by means of change parts.

Coder for conical paper containers is available from Adolph Gottscho, Inc., Hillside, N. J.

For more information circle 5466 on Reader Service Slip.

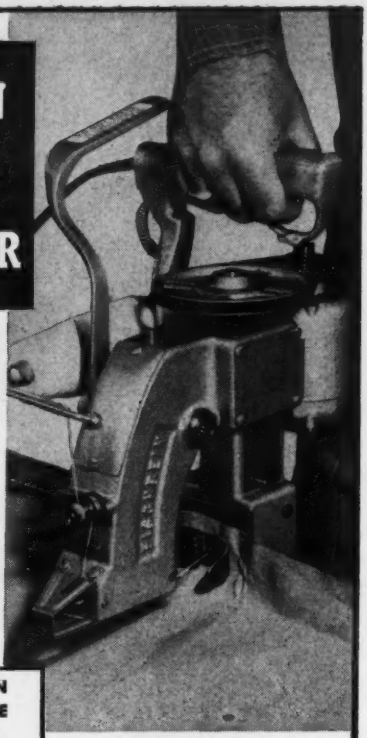
READER SERVICE

For more information on packaging developments described in these articles . . . use the convenient self-mailing Reader Service Slip opposite the inside back cover.


almost every frozen seafood product . . .
fillets and sauce
shrimp creole
french fried scallops
fish fillet dinner
has more glittering display value . . .
greater heat-and-serve consumer convenience . . .
when it's in a proven-by-sales package by . . .
The Plus Container
EKCO-ALCOA CONTAINERS Inc.
Wheeling, Illinois
EKCO is the registered trademark of Ekco Products Company. ALCOA is the registered trademark of Aluminum Company of America. The corporate name and combination mark, EKCO-ALCOA, is used under license to the manufacturer by each of these companies.

5467 on Reader Service Slip

FISCHBEIN *Portable* BAG CLOSER



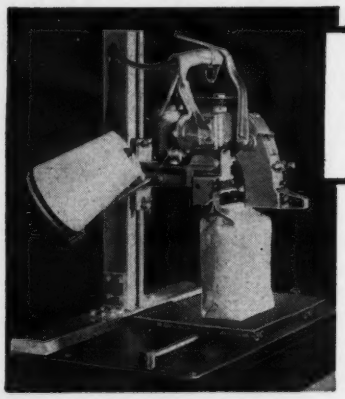
HANDLES ALL TYPES OF BAGS!

- Total weight. 10½ lbs.
- Requires no installation . . . plug into any outlet
- Simple to operate and maintain
- Lowest priced bag closer on market

FULLY GUARANTEED!

OPTIONAL SUSPENSION UNIT ADAPTS MACHINE TO STATIONARY USE

NEW! FOR CLOSING SMALL BAGS!



FISCHBEIN TABLE MODEL CARRIAGE CONVEYOR
(Model FS)

One simple knob locks any Fischbein Portable Bag Closer into proper sewing position. Carriage slides freely and returns automatically to starting position, ready for next bag.

UNIQUE VERSATILITY! Any Fischbein Bag Closer can be used 3 different ways!

1. Completely portable
2. Suspended with counterbalance
3. On carriage conveyor for closing small bags

FOR DETAILS, MAIL THIS COUPON TODAY!

DAVE FISCHBEIN CO., DEPT. 2A
2730 30th Ave. S., Minneapolis 6, Minn., U.S.A.

Name_____

Firm Name_____

Address_____

City_____ Zone____ State_____

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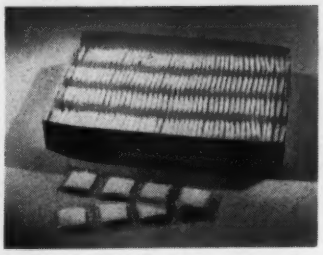

Strips of four cellophane-wrapped patties, heavily scored to pull apart easily, are automatically packaged into cardboard serving trays of 2½-lb capacity

Forms, individually wraps butter patties at rate of 600 to 1000/lb hr

Individually wrapped and sealed butter patties, packaged directly from the churn, would provide labor savings for the creamery-producer, outstanding butter salvage possibilities for the institutional user and restaurant owner, and complete sanitary protection for the consumer.

Such an item has recently proven successful in a month-long test operation at Lowry Air Force Base, Denver, Colo.

The machine responsible takes bulk butter, either directly from the churn or after it has been set up in prints, forms the butter into patties, deposits each patty between two ribbons of film, cellophane, or other plastic heat-sealing material in a continuous action, and seals the two films together to form individual, air-tight packets. The individually wrapped patties are then automatically packaged into cardboard serving trays, each containing approximately 2½ lb of butter.

Rate of production is between 600 and 1000/lb hr, and a crew of three is required for most efficient operation of the unit.

The machine, invented by Harry A. Mead of Denver, Colo., was designed primarily to meet the needs of the restaurant and institutional feeding market, which, Dept. of Commerce statistics show, consume in excess of 410 million lb of butter annually. Because the wrapped butter pat-

Give packaging problems the slip...

with SLIPICONE
SILICONE RELEASE AGENT
stops sticking . . . easy to use

Here's a safe, sure way to keep foods from sticking to equipment and "gumming-up" your packaging operations. Just apply *Slipicone* to all containers and equipment that come in contact with food. *Non-toxic—heat resistant—completely safe!*

Slipicone saves you money! Slipicone-treated equipment stays cleaner, more sanitary—speeds your processing—cuts maintenance costs. Ideal for use on all heat-sealing and labeling equipment.

Just wipe or spray it on! Available in 2 and 8 oz. tubes, and 12 oz. spray cans.

Get Slipicone from your paper merchant, packaging materials supplier, or write to

DEPT. 5722

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

CANADA: DOW CORNING SILICONES LTD., TORONTO

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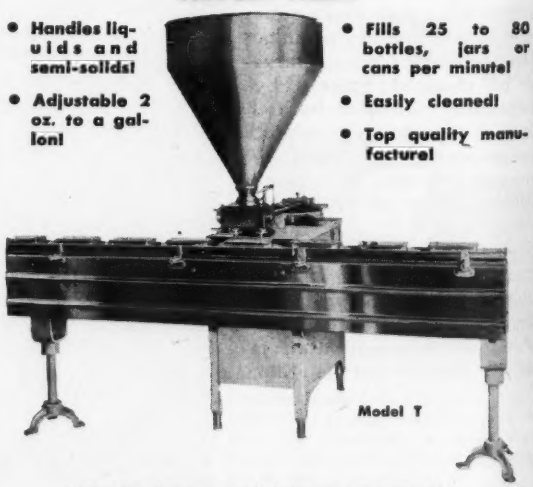
THIS INEXPENSIVE FILLER DOES YOUR FILLING JOB!

SIMPLEX FILLER

- Handles liquids and semi-solids!
- Adjustable 2 oz. to a gallon!
- Fills 25 to 80 bottles, jars or cans per minute!
- Easily cleaned!
- Top quality manufacture!



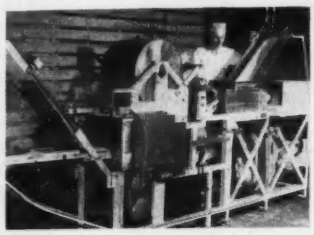
Write for circular on this fully automatic Model T (2 pistons) and other Simplex fillers.

F. L. BURT COMPANY
571-7th Street • San Francisco 3, Calif. • Phone KLondike 2-2020

Name .....
Address .....
City ..... State .....

5470 on Reader Service Slip

ties arrive in restaurants ready to serve, kitchen or serving personnel need no longer break apart the sheets of scored commercially prepared butter patties. Further, individually wrapped patties can be taken from cold storage at the last moment before serving and quickly and sanitarily dispensed to patrons. Heretofore, public health authorities have required disposal of butter served but not used. However, where the patty is enclosed in an air-tight packet, there is no sanitation reason to prevent re-chilling and re-serving.



During Lowry Air Base test, prototype Butter-Pak machine produced 18,000 lb of cellophane-wrapped butter patties (a half-month's supply for the base) in less than 30 hr of operation. Base reported savings over 25%

Anticipate home market

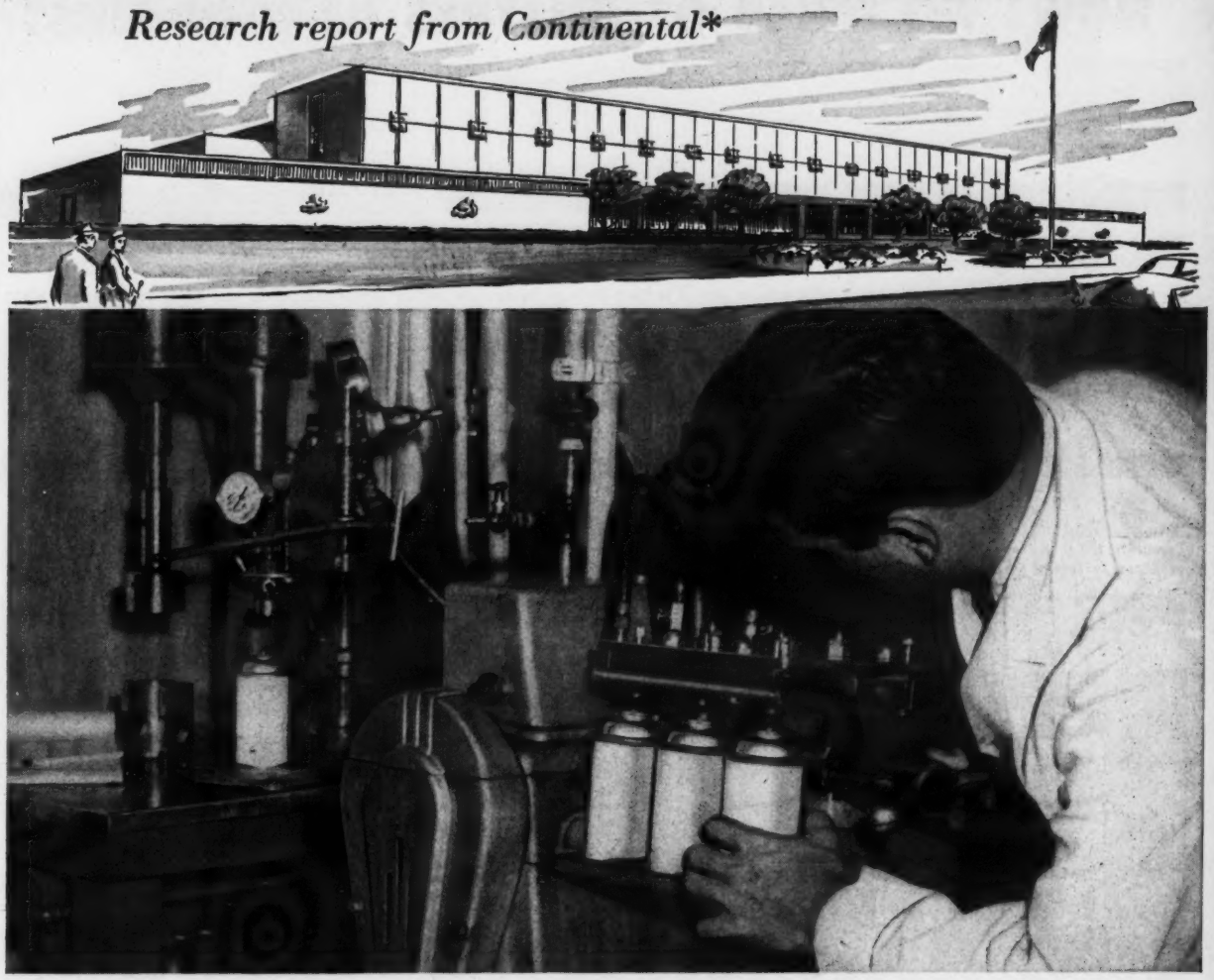
Besides restaurant and institutional use, a vast home consumption market is anticipated. Economies and convenience arising from availability of precise quantity servings should be attractive to housewives. Also, the individually wrapped servings should be handy for picnics and lunch pails.

Prototype machine used in the 30-day test weighs under 4000 lb, is 32″ wide, 64″ high, and approximately 10′ long. It operates on 230 v, 3-phase electricity, and is constructed with double gearing throughout, anti-friction bearings, and stainless steel covers and guards. Production models will be made available to creameries on a long-term lease basis.

Butter-Pak machine is development of Butter-Pak, Inc., 3245 Larimer St., Denver 5, Colorado.

For more information circle 5471 on Reader Service Slip.

*Research report from Continental**



RESEARCH AT CONTINENTAL BREAKS THE "PRESSURIZED FOOD" BARRIER

Look for a new era in pressurized packaging, thanks to Continental research. Previously, the only marketable pressurized foodstuffs were foam products like whipped cream. Now Continental engineers have pressure packaged such foodstuffs as salad dressings, catsup, mustard, meat tenderizers and sauces, table syrups, cake toppings, and chocolate syrup.

Designing pressurized containers for these foodstuffs seemed a formidable task. Non-toxic compressed gases did not give a spray or stream pattern with known types of dispensing and left as much as 20% product residue in the container.

To overcome these obstacles, Continental engineers began sustained experimentation with numerous gas mixtures, with specially designed valve openings and actuators, and with many different food products. Pressurized food containers developed by this research dispense water-base or oil-base food products by means of non-toxic propellants in a spray or stream pattern with a minimum of aeration and product residue.

This is one more example of successful Continental research on a basic container problem. If you have a packaging or processing problem, Continental experts can help you solve it. Why not call your nearest Continental representative.

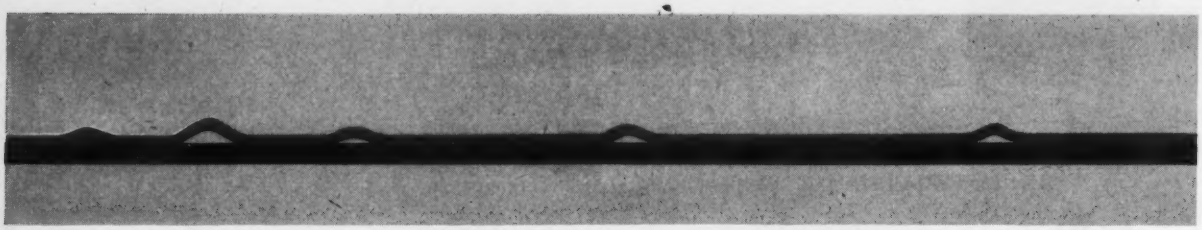
TOP AWARD WINNER. For the excellence of its modern, scientific design, Continental's new 7.5 million dollar Chicago research center has won the honor award of the Chicago chapter of the American Institute of Architects and the Chicago Association of Commerce and Industry.

QUALITY Continental SERVICE

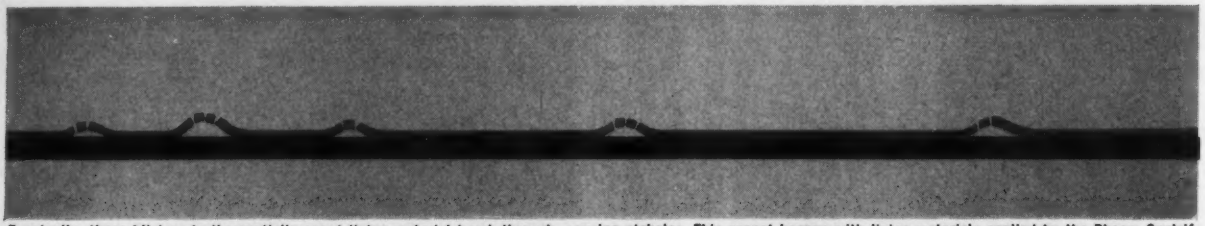
CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd St., New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4
Canadian Division: 5595 Pare St., Montreal, Que.

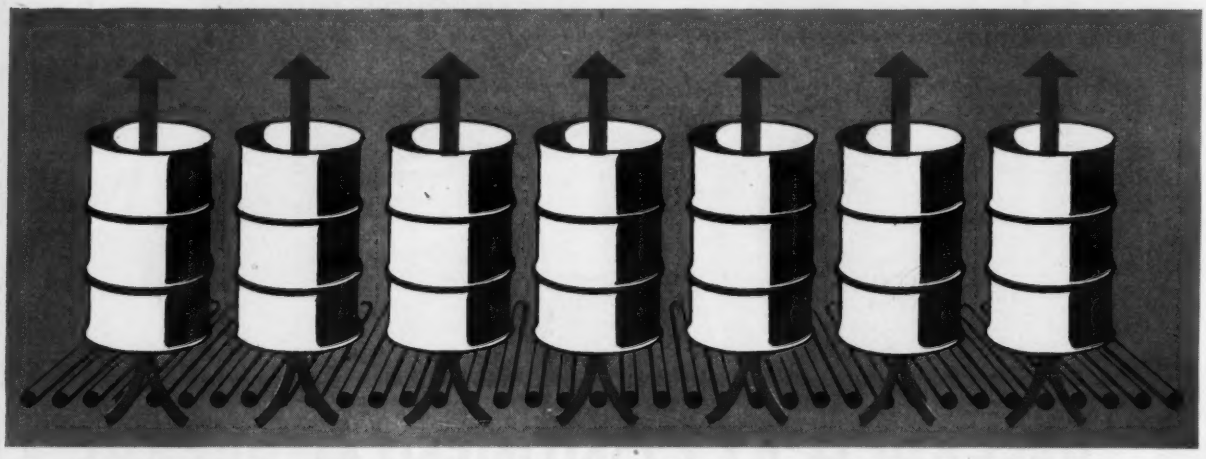
Now! No trace of blisters or pinholes!



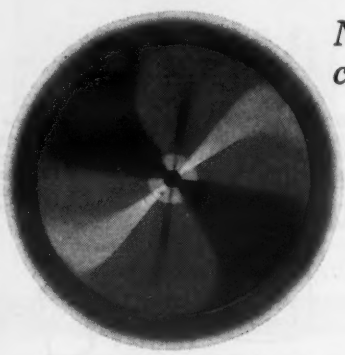
Globules of air or solvents can be trapped in lining material applied to steel drums by the air spray method These expand under heat during the curing process.



Eventually, these blisters in the partially cured lining material break through, causing pinholes. This cannot happen with lining materials applied by the Rheem Centrifugal Spray Process as no air is used, and solvent content is vastly reduced.



And Rheem uniformly applied linings are properly cured by high temperature baking which insures even, free flow of warm air vertically through every drum.



New Centrifugal Sprayer spins off a continuous curtain of finely atomized lining material at a controlled, uniform rate.

New Rheem Centrifugal Spray Process gives you a completely uniform lining, drum after drum after drum!

All surface areas of a drum automatically lined by the new Rheem Centrifugal Spray Process are—*and stay*—completely and uniformly coated.

This new, fully automatic process not only eliminates globs and skips, but blisters and pinholes as well. And Centrifugal Spraying, teamed with the new Rheem Vertical Baking Process, results in a curing job never before equaled!

Only the new Rheem Centrifugal Spray Process gives you: (1) Uniform lining thickness—controlled to within .1 of a mil. (2) Uniform viscosity of lining materials with lower solvent content. (3) Uniform application. There's no air turbulence because there's no air used in the spray and no drum rotation. Spray always travels the same distance to coat all surfaces. Human element eliminated. (4) Uniform curing—thanks to vertical, 3-stage ovens with controlled air flow and temperatures.

YOU CAN RELY ON Rheem WORLD'S LARGEST MAKER OF STEEL SHIPPING CONTAINERS

For full details write: Rheem Manufacturing Co.
Container Division, 1701 Edgar Road, Linden, N. J.

Plants and Sales Offices: Richmond and South Gate, Calif. • Chicago • Linden, N.J. • New York • Houston • New Orleans • Sparrows Pt., Md.

5472 on Reader Service Slip

Complete distribution system emphasized at SIPMHE meeting

The National Industrial Packaging and Handling Exposition, expected to be the largest by far to date, will be held October 28 through 31 at Atlantic City. This year, emphasis will be placed on the complete distribution system and the interrelation of industrial packaging, handling techniques, and transportation as they affect distribution costs and efficiency. Handling phases of the exposition, which will occupy approximately 50,000 sq ft, will encompass equipment, attachments, accessories, and systems, while transportation will be represented by exhibits covering air, highway, rail, and water.

The Short Course program will offer a wide variety of talks and panel sessions. Of the 18 sessions, extending over three days, three will be devoted to teaching conferees how to conduct "brainstorming" sessions. These will be led by Temple University's management counsellors.

Some of the short course subjects are: "Practical Approaches to Package Engineering", C. J. Zusi, Packaging Consultant, Chicago.; "Fluidization in Bulk Handling", R. W. Dolan, Superior Separator Co.; "The Case for Multi-Story Buildings", F. J. Curry, Terminal Warehouse Co.; "The Case for Single-Story Buildings", H. L. Ziegler, Pittsburgh Plate Glass Co.; "New Ways to Cut Distribution Costs Through Modern Transportation", W. W. Patchell, Pennsylvania R.R.

Headquarters of the Exposition are at Suite 759, One Gateway Center, Pittsburgh, Pennsylvania.

For more information on product at right, circle 5473 . . . see information request blank opposite last page.

How Polyethylene-coated paper

Keeps dry milk dry

Paper coated with a special compound based on BAKELITE Polyethylene by **Crown Zellerbach Corp.**, San Francisco, Calif., and fabricated into bags by **Richmond Paper Co.**, Highland, Calif., is used to package non-fat dry milk solids by **Challenge Cream and Butter Association**, Los Angeles, Calif.

This bag's inner coating of polyethylene works two ways to protect the contents. First, it keeps moisture and moisture vapor from getting through. Second, it forms a quick, tight heat-seal despite the powdery, dusty contents.

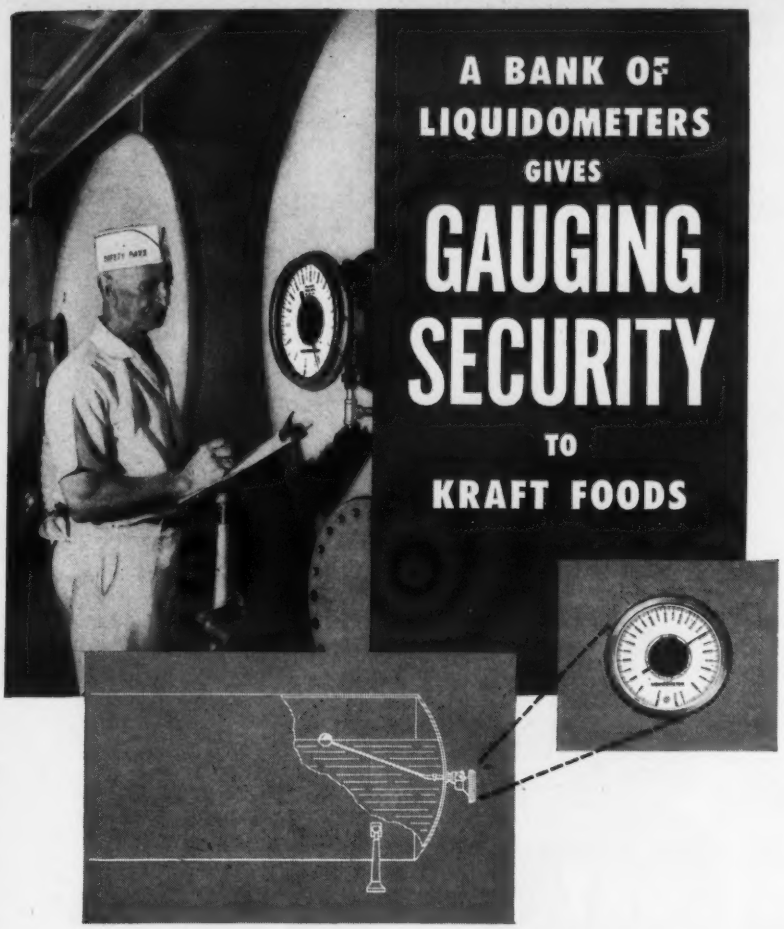
Many different types and weights of paper—as well as films and foils—are now being coated with BAKELITE Brand Polyethylene to obtain these advantages. In addition, highly inert BAKELITE Polyethylene resists the action of most chemicals, including oils, greases, and most acids. And it stays flexible at temperatures below freezing.

BAKELITE Resins serve the food industry in many ways . . . *vinyl* coatings on milk containers . . . *polyethylene* on ice cream, soup and other containers. *Vinyl, phenolic* and *epoxy* resins are specially compounded for coatings used on food processing equipment. For suggestions on how these materials may serve you, write Dept. WL-64.

BAKELITE
BRAND
POLYETHYLENE

UNION CARBIDE

BAKELITE COMPANY, *Division of Union Carbide Corporation,* 30 East 42nd Street, New York 17, N. Y.
In Canada: Bakelite Company, Division of Union Carbide Canada Limited, Belleville, Ontario.
The terms BAKELITE and UNION CARBIDE are registered trade-marks of UCC.



At the Kraft Foods plant in Hillside, N. J., Liquidometer gauges supply an accurate, reliable measure of vegetable oils which are fed into the Kraft food processing system.

The gauges used by Kraft are 12" direct readers. Their function: gauging the contents of the 24 tanks in which Kraft stores vegetable oils at 100-120 degrees F. The slightest change in liquid level is instantly and automatically transmitted to a large, easy-to-read dial. Inventories are accurately maintained with a minimum of effort.

Liquidometer direct readers are available with automatic warning signals where certain liquid levels are critical. Dependability, low maintenance, high readability, safety and ease of installation ideally suit Liquidometers for every liquid gauging need.

A variety of dial type Liquidometer gauges are available for direct and remote indication. For complete details write Dept. G for Bulletin 463.

LIQUIDOMETER INSTRUMENTS

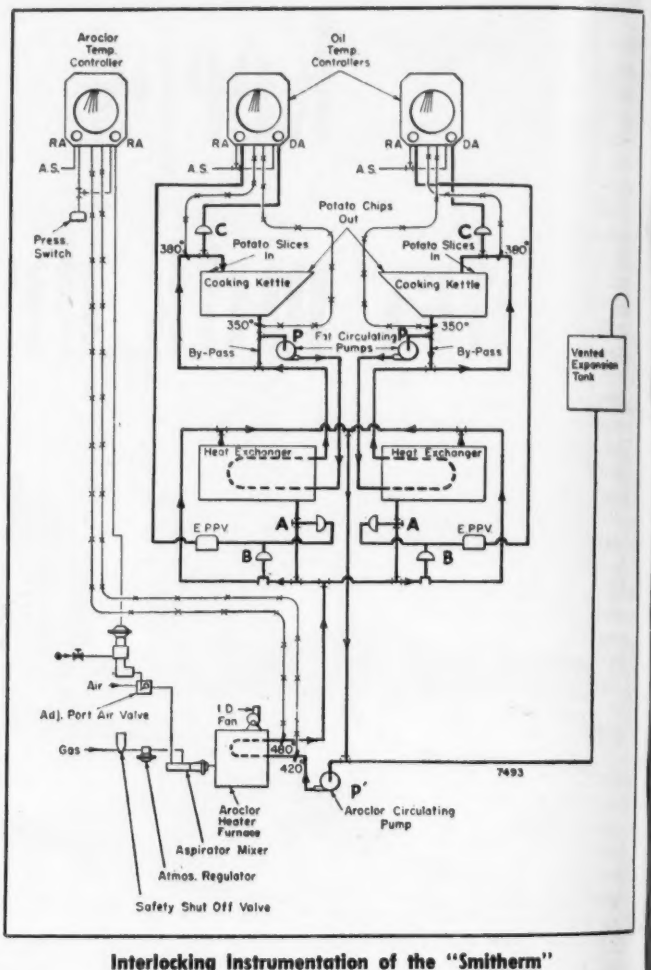
Liquids worth storing are worth measuring.

THE LIQUIDOMETER CORP.

SKILLMAN AVENUE AT 36TH STREET, LONG ISLAND CITY 1, N. Y.

5474 on Reader Service Slip

Control cooking fat temp tur



Interlocking Instrumentation of the "Smitherm"

The "Smitherm" system for deep fat frying uses indirect heating and completely automatic temperature controls. Oil is constantly recirculated from the heat exchanger to cooking kettle by pump P. Aroclor heat exchanger fluid is constantly recirculated from the heat exchanger to furnace by pump P'.

Oil temperature controllers: Temperatures at both ends of cooking kettle are automatically controlled. Inlet temperature is maintained at 380°F by controller regulating amount of Aroclor to heat exchanger. Thus if more heat is required, bypass valve B closes, and inlet valve A opens. Outlet temperature is maintained at 350°F by controller throttling amount of oil entering cooking kettle. Thus, if cooking rate is decreased, valve C will close to decrease amount of oil entering kettle. (Valve C never completely closes, so inlet temperature measured always reflects temperature of fat leaving heat exchanger. If recirculating oil pump is not running, indicating this kettle is not in use, then flow of controller air to Aroclor valves is shut off by EPPV, causing Aroclor to completely by-pass heat exchanger serving this kettle.)

Aroclor temperature controller: temperature controller on furnace has temperature sensing bulb in Aroclor inlet line. As more heat is required, rate of fuel to furnace automatically increases. High limit control is set at 480°F on Aroclor outlet line. As Aroclor leaving furnace approaches 480°F, limit control overrides other furnace control, throttling fuel rate.

ture to 1°F

In a sustained, high production operation, indirect heating of oils and automatic temperature controls improve quality . . . increase production

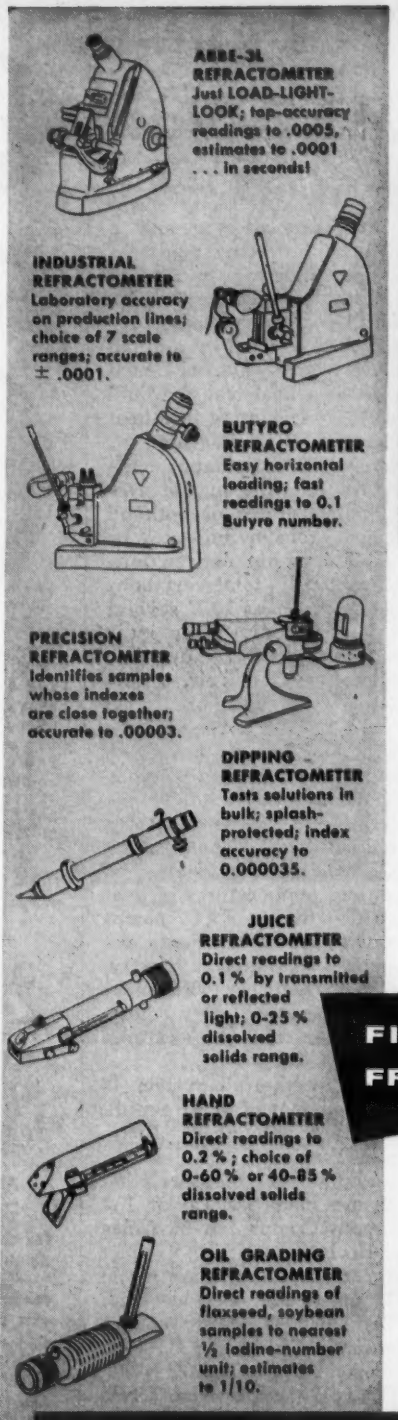
Problem: A critical problem involved in cooking with oil is temperature. Temperatures approaching 400°F can cause smoking, discoloration, or other undesirable changes in oil. Using conventional direct heating methods, where gas or oil burners fire into a combustion chamber directly beneath the cooking kettle, the oil film on bottom of kettle is exposed to temperatures a hundred degrees or more in excess of temperature measured in the body of oil.

Control is difficult and the oil, being subjected to extreme temperatures, can adversely affect quality, appearance, and shelf life of products cooked in this manner.

Solution: An indirect heating system, whereby heat does not come in direct contact with bottom of cooking kettle, was installed in the Detroit plant of Nicolay-Dancey, Inc., producers of New Era Potato Chips. Completely automatic

(*Continued on next page*)

Two oil and one Aroclor recording temperature controllers are shown on panel in background at finishing end of potato chip production



ABBE-3L REFRACTOMETER Just LOAD-LIGHT-LOOK; top-accuracy readings to .0005, estimates to .0001 . . . in seconds!

INDUSTRIAL REFRACTOMETER Laboratory accuracy on production lines; choice of 7 scale ranges; accurate to ± .0001.

BUTYRO REFRACTOMETER Easy horizontal loading; fast readings to 0.1 Butyro number.

PRECISION REFRACTOMETER Identifies samples whose indexes are close together; accurate to .00003.

DIPPING REFRACTOMETER Tests solutions in bulk; splash-protected; index accuracy to 0.000035.

JUICE REFRACTOMETER Direct readings to 0.1 % by transmitted or reflected light; 0-25 % dissolved solids range.

HAND REFRACTOMETER Direct readings to 0.2 %; choice of 0-60 % or 40-85 % dissolved solids range.

OIL GRADING REFRACTOMETER Direct readings of flaxseed, soybean samples to nearest ½ iodine-number unit; estimates to 1/10.

Just LOAD-LIGHT-LOOK

Top accuracy readings in seconds!

BAUSCH & LOMB — LOAD — LIGHT — LOOK — REFRACTOMETER — ABBE-3L

EASIEST OPERATION EVER! Front, horizontal loading. Fixed prism assembly . . . wipes clean in a wink. DUO-SPEED control knob . . . rapid scanning and fine line setting at the touch of a finger.

FASTEST, TOP ACCURACY READINGS! New instant-reading precision scale, graduated directly to .0005. Quick, easy estimates to .0001.

ASSURES FULL-WORKING-DAY COMFORT! Eyepiece at convenient height and angle for relaxed sitting-position observation; DUO-SPEED control knob and line-scale switch in low position for hand-at-rest operation.

PLUS . . . many other new features and new performance advantages setting the new standard for high-speed, high-accuracy refractometry. Find out how they can ease your work load.

FILL YOUR QUALITY CONTROL NEEDS FROM INDUSTRY'S MOST COMPLETE LINE

Only the *right* instrument for the specific job can protect quality standards . . . save time . . . cut production costs. Only the complete, top-accuracy Bausch & Lomb line assures you the *right* instrument for *every* job; on-the-spot production line inspection . . . field checks . . . research. Find out now how the *right* B&L instrument makes peak efficiency easy.

MAIL COUPON FOR COMPLETE DATA

BAUSCH & LOMB OPTICAL CO.
60622 St. Paul Street, Rochester 2, N. Y.

Send me complete data on the following B&L Refractometers:

☐ Abbe-3L ☐ Precision ☐ Butyro ☐ Industrial
☐ Dipping ☐ Juice ☐ Hand ☐ Oil Grading
☐ I would like a demonstration of the B&L Refractometers checked above.

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COMPANY.....
ADDRESS.....
CITY..... ZONE..... STATE.....

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SINCE B&L 1853

America's only complete optical source . . . from glass to finished product.

5475 on Reader Service Slip

(Continued from preceding page)

temperature controls were also used. Known as the "Smitherm" system, this is the third such installation made for a food processor and a fourth is now being made.

Indirect heating is applied by adding pipe connections to a kettle of conventional design to circulate oil by a pump through an external heat source — a heat transfer fluid (Aroclor) circulating in a heat exchanger. (See diagram.)

By using automatic temperature controls in the system, temperatures of both oil and heat transfer fluid may be controlled within desired limits. Previously, total variations were as much as 10°F several times per hour. With indirect heating and automatic temperature controls, temperature variations of 1°F in oil and 2°F for Aroclor have been observed in sustained, high production operation.

Shortening is no longer exposed to extreme temperatures found adjacent to combustion chamber, but is treated to moderate temperatures of heat transfer fluid. Fat passes through tubes of heat exchanger at high velocity, thereby reducing thickness and temperature of oil film. Thus, high film temperatures no longer exist.

The "Smitherm" system is a development of H. L. Smith, Consulting Engineer, Richmond, Virginia.

Automatic temperature controls are made by Taylor Instrument Companies, 95 Ames St., Rochester, N. Y.

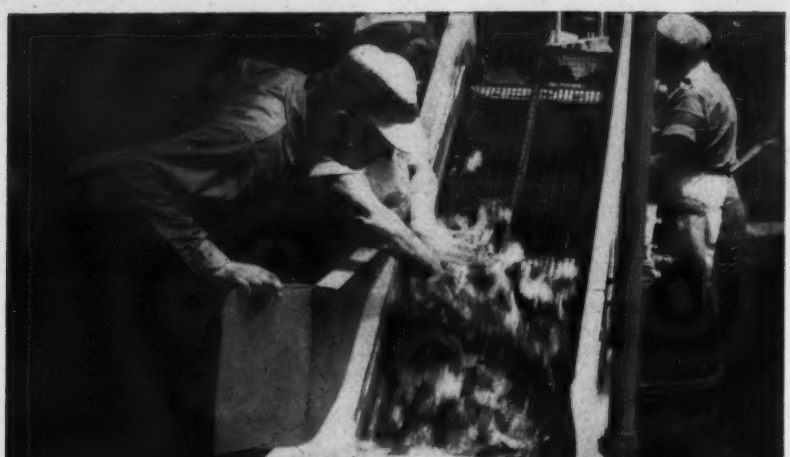
For more information circle 5477 on Reader Service Slip.

"Aroclor" is a product of Monsanto Chemical Co., 1700 S. Second St., St. Louis 4, Mo.

For more information circle 5478 on Reader Service Slip.

READER SERVICE

For more information on instrumentation described in these articles . . . use the convenient, self-mailing Reader Service Slip opposite the inside back cover.



Washing stage in Seabrook Farms processing line. Here Kale is being washed and will next go into steam room for blanching. All water is chlorinated.

HOW W&T IN-PLANT CHLORINATION

increases vegetable processing rates

Seabrook Farms at Seabrook, N. J. processes over 100,000,000 pounds of frozen food annually. For every 10 ounce package of frozen food, an average of 7 gallons of chlorinated wash water is used.

Mr. E. L. Morin, head of Seabrook Farms quality control department says, "By the introduction of Wallace & Tiernan Chlorination equipment into our in-plant process, we have reduced our clean-up periods by 50%. We must process at top capacity during harvest seasons; reducing clean-up time increases our daily production rate. In the instance of peas alone, In-Plant Chlorination reduced clean-up times during a 24 hour period from two hours to one . . . still maintaining standards of low bacteria counts in the product."

For information about W&T In-Plant Chlorination send for Bulletin I-57.

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MERCHEN GRAVIMETRIC FEEDERS & METERS

for dry free-flowing materials

- automatic batch control
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Accuracy 1%
Rates 3 to 3000 lbs. per min.

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M-32

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DIAL THERMOMETERS

in 3 types to suit any requirements

PATENTED

Full 4½" dial face. Stem can be placed at any angle and case can be rotated to any readable position.

1 **Rigid Stem Dial Thermometer** tapered bulb, interchangeable with standard industrial thermometer separable socket. (As illustrated above.)

2 **Wall Mounted Dial Thermometer** with flexible connecting armor. Case adjustable to easy reading position.

3 **Flush Mounted Dial Thermometer** for panel mounting with flexible connecting armor.

All three types have a full 4½" dial face.

for accuracy: Mercury actuated . . . Fully Compensated by Invar Compensaton. Guaranteed Accurate 1 scale division.

for angularity: Can be adjusted to most readable position at any angle desired.

for readability: Bold Black Numbers . . . 11" of scale Reading Dial face can always be placed in easiest readable position.

for interchangeability: Always specify "PALMER" Separable sockets as they are interchangeable for Dial or Industrial type Thermometers.

PALMER
THERMOMETERS, INC.
Norwood Ave., Cincinnati 12, Ohio
Mfrs. of Industrial Laboratory Recording and Dial Thermometers

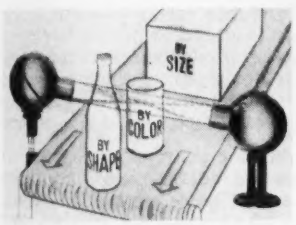
5479 on Reader Service Slip

Self-contained electronic eye

Only wires from system are leads to power line and to device being controlled

Uses: Unit may be used for data input information, as a counter or sorter, a safety device, an alarm, or an indicator.

Features: Waterproof, dustproof, and vapor-proof, unit has two sphere halves held together by one bolt, securing them against an O-ring, giving a positive seal. Does not easily collect dust or dirt because of smooth design, having no flat surfaces or sharp corners. All units are self-contained and interchangeable, sphere halves being plug-in type.



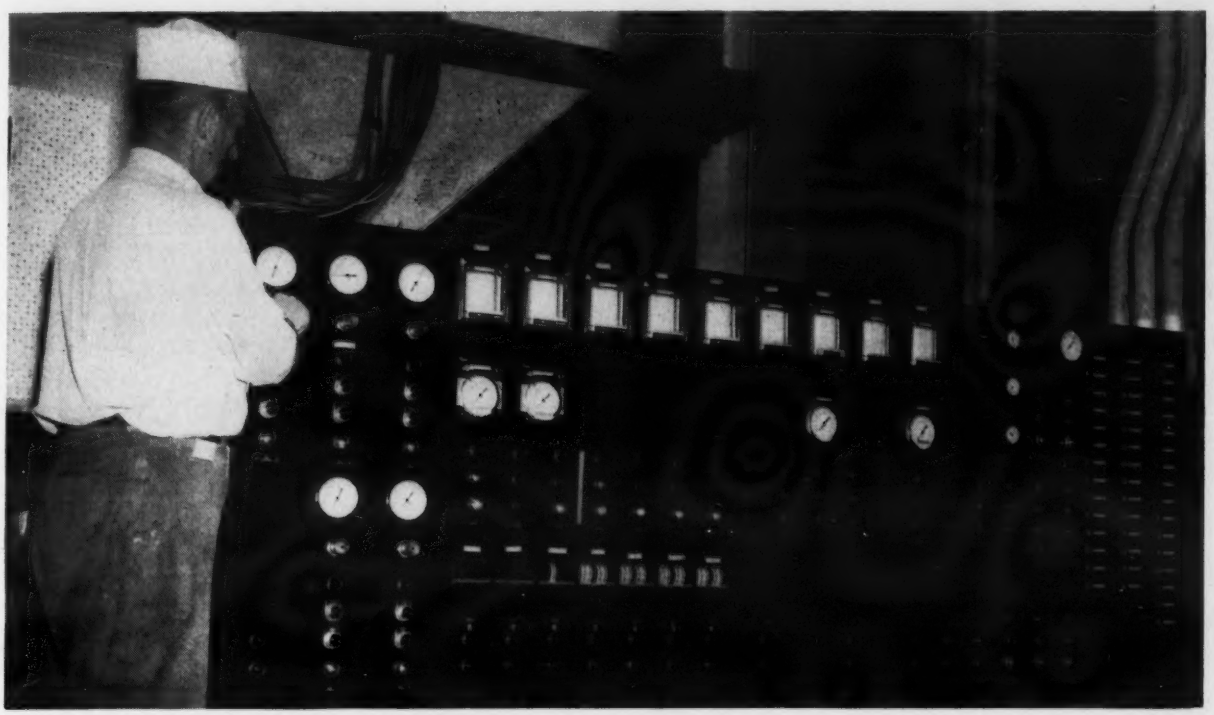
Electronic eye can be adjusted to control such qualities as size, shape, color, quantity, texture, and position

Description: System consists of two units: a projector as light source, and a receiver as the light-sensitive control. Operating components of both units are housed in spheres five inches in diameter. Receiver sphere houses the light-sensitive eye, an amplifier, and a relay. Projector sphere contains a lamp and transformer.

All operating components in receiver sphere are assembled in its top half. Only wires from system are leads to power line and to device being controlled. If desired, spheres can mount directly on conduit which carries electrical leads. No other mounting devices, brackets, or external equipment are necessary. Light source and receiver spheres can be rotated on conduit, and upper half of sphere can be rotated in any 360° direction

(*Continued on next page*)

Canning Process Becomes Automatic at Libby, McNeill & Libby of Canada Ltd.



Central control panel, using Taylor TRANSET miniature recorders and indicators. Signal lights show hopper levels.*

NOW! TAYLOR SYSTEM BRINGS ADVANCED AUTOMATION TO THE CANNING INDUSTRY

LIBBY, McNeill & Libby of Canada Ltd. has the first completely automatic control system in the Canadian canning industry, in their plant at Wallaceburg, Ont. The installation was evolved cooperatively by the Food Machinery Company of Hamilton, Ont., and Taylor Instrument Companies of Canada Ltd. It brings to food processing the advances in automation that have been developed in chemical, petroleum and other continuous process industries in recent years.

The various canning lines at Wallaceburg are so designed that Taylor instruments provide efficiency, quality preservation, as well as capacity for handling large volumes of food. The flow and processing of food products is measured through a system of locally mounted instruments, transmitting to a control panel located on the main floor.

The panel tells that proper product flow is being maintained—it shows which hopper is full, half full or nearly empty. It also indicates which closing machine is operating at full speed or not operating at all.

A smaller panel on the next floor enables the foreman to maintain uniform flow to the filling hoppers. The operator at the main panel can then adjust line speed to give maximum uniform production, keeping load changes to a minimum.

Temperature measurements in the canning processes are by TRANSAIRE* Transmitters. Control, indication and/or record of temperatures and pressures at the various stages are accomplished by means of Taylor TRANSET System of miniature instrumentation.

Benefits from this system: closer quality control with minimum spoilage; considerable savings in consumption of steam and water; minimum operator attention; a convenient, intelligence center for supervision.

• • •

Ask your Taylor Field Engineer for further information about this new development in canning control or write for **Catalog 500.** Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

*Reg. U.S. Pat. Off.

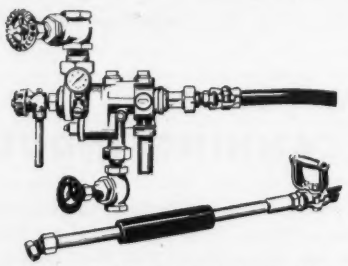
Taylor Instruments **MEAN ACCURACY FIRST**

5480 on Reader Service Slip

NO OTHER CLEANING TOOL . . . *EVER* MATCHED THIS

Nothing softens, loosens and moves dirt like a SELLERS Hydraulic Jet Cleaner . . . and there are installations in over 4000 plants that prove it.

The SELLERS Hydraulic Jet Cleaner needs only a supply of cold water and steam as low as 5 psi. It



produces a hot liquid jet providing scrubbing-action at the point of impact with pressures to 200 psi., temperatures to 210°F.

Use it on floors, conveyors or machinery—it sweeps hydraulically . . . penetrates the smallest crevices, reaches and cleans without disassembly.

GET THE FACTS . . . *send for Bulletin 424.*

SELLERS *Injector* CORPORATION

1603 Hamilton Street, Philadelphia 30, Pa. • Since 1848

5481 on Reader Service Slip

(*Continued from preceding page*)

without changing mounting.

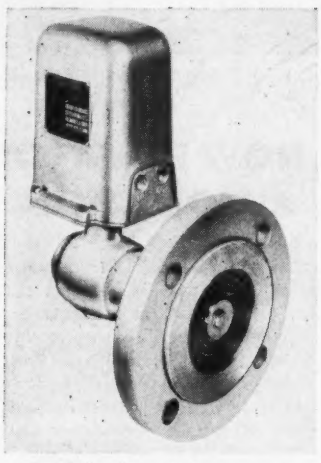
A calibrated sensitivity control, adjustable from outside of housing, provides for locating spheres close together or far apart. A lens focus system permits focusing light paths of both receiver and projector to allow a small object to break light beam a few inches or a few feet away from lens.

Electronic eye systems are manufactured by Basic Controls Co., 1714 Westwood Blvd., Los Angeles 24, Calif.

For more information circle 5482 on Reader Service Slip.

Measures level of viscous fluids

Uses: A differential pressure liquid level transmitter measures viscous or slurry-type liquids in open or closed vessels.

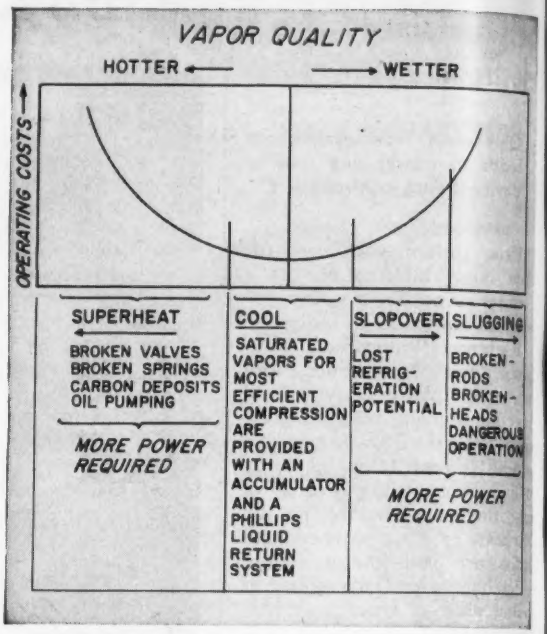


Liquid level transmitter mounts directly on tank nozzle to measure viscous or slurry-type liquids in open or closed tanks

Features: The transmitter operates on the force balance principle and maintains calibrated accuracy over a wide range of ambient conditions. The pneumatic output of the transmitter—a 3-15 psi signal proportional to tank level, will operate a remote indicator, recorder, or controller. No auxiliary signal amplifier is needed.

Description: The level measuring element, a silicone-

Liquid Ammonia Return Systems are Refrigeration's Preventive Insurance



Insurance at its best is insurance that *prevents* disaster. It's a much better buy than insurance which merely foots the bills while you get back in production after accidents. Phillips liquid ammonia return systems, which safeguard compressors against gulps of incompressible liquid ammonia, provide this sort of "insurance"— and it is quickly "paid up for life."

But liquid return systems are not in competition with insurance; in fact, many such systems are installed at the insistence of alert insurors who know a hazard when they see one.

Safety is a clear-cut reason for installing liquid return systems, but it is only one of several equally compelling reasons (see "VAPOR QUALITY" chart). *Economy of compressor operation* makes even more sense to the optimist ("It's a good compressor . . . How Can A Little Frost Hurt It?"). Cycling liquid ammonia through the compressor, even if it does not cause immediate damage, increases the power requirements and reduces the refrigerating effect produced. Liquid return systems by-pass liquid ammonia around the compressor and put it back where it belongs — in the evaporator. Here it can boost maximum or peak capacity of the entire system, it can raise cycle efficiency, and it permits full flooding of the evaporator coils without endangering the compressor.

Phillips liquid return systems are ruggedly built of top-quality materials, in many configurations and sizes, for a wide variety of custom-engineered installations. You will find it a simple matter to select and add the right Phillips system to your refrigeration cycle. You can make a good start in this direction by writing direct to the manufacturer for a more complete engineering discussion of liquid return systems. We give all inquiries prompt attention.

SEND FOR BULLETIN LRS-56 — TODAY!

PHILLIPS FLOAT CONTROLS

H. A. PHILLIPS & CO.
DESIGNERS AND ENGINEERS
REFRIGERATION CONTROL SYSTEMS
3255 W. Carroll Ave. • Chicago 24, Illinois

5483 on Reader Service Slip

filled diaphragm capsule, is assembled in a 3" flange for flush mounting on the side of a vessel. Head of liquid in the vessel applies force to the high pressure side of the capsule which is opposed by force on the low pressure side. The low pressure side may be open to atmosphere for measurement of open tank level, or it may be connected by piping to the top of a closed tank to balance out static pressure. Adjustable range suppression and elevation springs can be attached to accommodate the various installation arrangements.

The measuring instrument (Type 13FA d/p Cell Transmitter) is a product of The Foxboro Company, Foxboro, Mass.

For more information circle 5484 on Reader Service Slip.

Panel mounted hygrometer for 0-1000 ppm range

Measures water content of vapor samples automatically

Uses: Continuous monitoring of vapor streams containing trace quantities of water vapor.

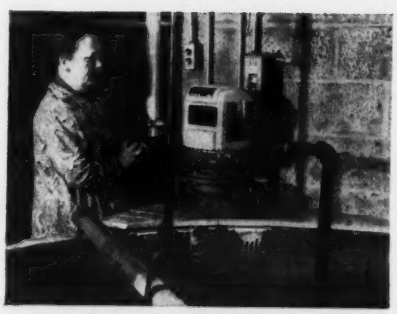
Features: Instrument is easily mounted on any plant control panel. Unit automatically and continuously measures water concentration in vapor samples, in difficult 0 to 1000 ppm range, with 5% accuracy at temperatures up to 100°C.

Instrument has alarm system which can be set at any point

Description: Continuous sample of vapor stream is passed through analytical ele-

(*Continued on next page*)

ONLY TWO MOVING PARTS IN THE LIQUID



New Neptune stainless steel meter accurately measures sulfuric acid at Parwel Mfg. Co., Gloversville, N. Y.

Now you can achieve fine-instrument accuracy in the processing of corrosive liquids . . . in batching, blending, transfer, cost accounting, etc. . . . with this new Neptune Stainless Steel Meter.

Also important in processing applications, this Neptune meter ends many problems caused by contamination of liquids measured.

Based on the reliable Neptune positive displacement principal, its accuracy is completely protected from the effects of corrosion or corrosive wear. There are only two moving elements in contact with the liquid. The gear-train is mounted outside the casing, isolated from the liquid.

Available with Direct Reading, Print-O-Meter or Auto-Switch Registers. Size 1½", capacity 100 gpm. with most liquids.

Ask for Bulletin 94/10 NFP.

neptune

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BRANCHES IN: ATLANTA • BOSTON • CHICAGO • DALLAS • DENVER • NEW YORK
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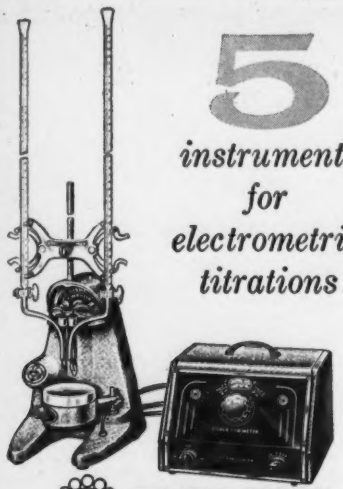


5 *instruments for electrometric titrations*

FISHER TITRIMETERS®

Leader in sensitive electrometric titration instruments is the famous Fisher family of Titrimeters®. With these instruments quality control is near-automatic routine.

Fisher Titrimeters have established themselves as key instruments for analyses of all types in all industries. They handle with ease and speed strong acids and bases, weak acids and bases, oxidation-reduction reactions, precipitations, big samples or minute ones.

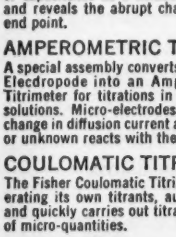
STANDARD TITRIMETER®
The basic analytical instrument for potentiometric titration, designed so that technicians can perform titrations quickly and with maximum accuracy.

AUTOMATIC TITRIMETER®
The Fisher Automatic Titrimeter automatically carries out and ends an entire titration and is quickly reset to start another.

HIGH FREQUENCY TITRIMETER®
An easy-to-use instrument which detects slightest changes in conductivity or capacitance as a titration proceeds and reveals the abrupt change at the end point.

AMPEROMETRIC TITRIMETER®
A special assembly converts the Fisher Elecdropode into an Amperometric Titrimeter for titrations in very dilute solutions. Micro-electrodes follow the change in diffusion current as a specific or unknown reacts with the titrant.

COULOMATIC TITRIMETER®
The Fisher Coulomatic Titrimeter, generating its own titrants, automatically and quickly carries out titrations, even of micro-quantities.



These two bulletins will help select the FISHER Titrimeter for your exact needs.

B-37a *Write:*
132 FISHER BLDG., PITTSBURGH 19, PA.

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America's Largest Manufacturer-Distributor of Laboratory Appliances & Reagent Chemicals

5486 on Reader Service Slip

(*Continued from preceding page*)

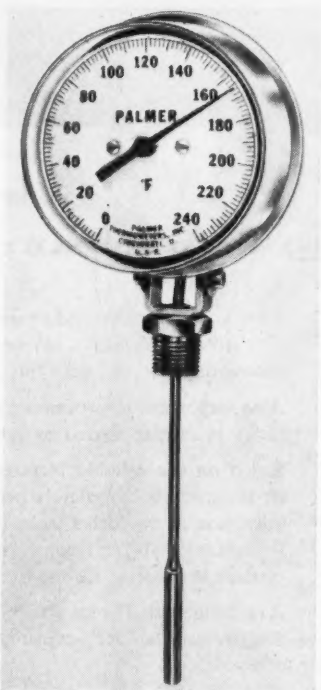
ment which absorbs and electrolyzes moisture present — current needed is measure of amount of moisture. Potentiometric recorder or recorder-controller can be operated from instrument output.

Panel Mounted Hygrometer is product of Process Instruments Div., Beckman Instruments, Inc. 2500 Fullerton Rd., Fullerton, Calif.

For more information circle 5582 on Reader Service Slip.

Dial thermometer fits all bi-metallic wells

Thermometer designed to fit all bi-metallic wells has 3½" dial. The stem, which comes in various lengths of 4, 6, 9, 12, 18, and 24 inches, can be placed



Thermometer is housed in a stainless steel case

at any angle, and the case rotated to any readable position without affecting accuracy of instrument.

Having a ¼" dia bulb and a stem fitting of ½" NPT, the thermometer has direct drive

(*Continued on next page*)

Would you like to receive FOOD PROCESSING personally?

It will be sent to you without charge or obligation . . .

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If you are responsible for processing operations in an administrative capacity as plant superintendent, food technologist, chemist, engineer or equivalent responsibility . . . in a plant of substantial operations* where food processing is an important factor . . . FOOD PROCESSING will be sent to you without charge or obligation if you request it. Use form below. In requesting, be sure to answer all questions. If your firm is not rated or listed in standard references, indicate size of the company by capacity, annual sales or number of employees. Unless all information is given, magazine will not be sent.

*"Substantial operations" does not necessarily mean an extremely large plant. But requests for the magazine exceed supply so we must set standards to insure publication being sent where it can be used to best advantage.

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(Continued from preceding page)

Bourdon coil, filled system, external calibration for zero setting, and accuracy to one scale division.

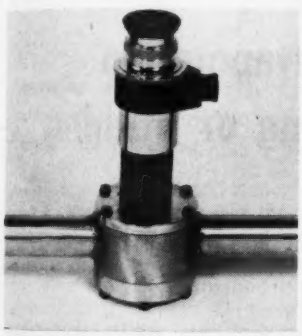
Thermometer is made by Palmer Thermometers, Inc., 2501 Norwood Ave., Cincinnati 12, Ohio.

For more information circle 5487 on Reader Service Slip.

Pipeline refractometer accurate to 0.0005 RI

Uses: Continuous control of concentration of transparent and opaque liquids.

Features: Unskilled operator can make measurements and, once installed, no adjustments are necessary. Any range of refractive index can be provided, and accuracies of 0.0005 RI are generally obtainable. Better accuracies (up to 0.0001 RI) can be achieved on transparent liquids when unit is fitted with micrometer screw and telescope.



Any convenient RI range can be provided

Description: Pipeline unit is mounted directly in product line, using flange mountings. All contact parts are stainless steel. Dark and heavily colored materials can be handled, as well as transparent liquids. Special models are made for evaporator installation as well as for high temperature applications.

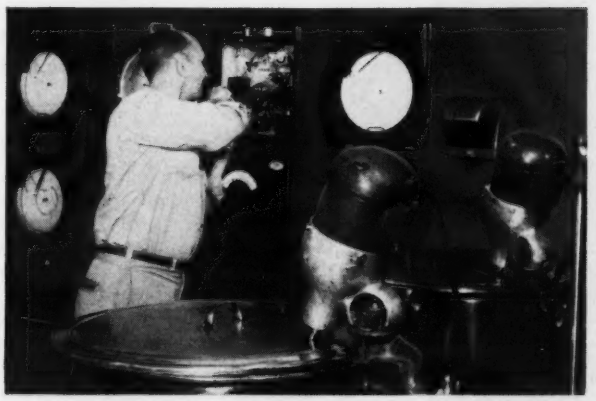
B & S Pipeline Refractometers are distributed by Epic, Inc., 154 Nassau St., New York 38, N. Y.

For more information circle 5488 on Reader Service Slip.

Why you get
MORE FOR YOUR MONEY
with Foxboro Instrumentation

The widespread preference of leading food processors for Foxboro Instruments is no accident. Behind all Foxboro products stand 49 years of engineering integrity in creating instrumentation, not merely as mechanical devices, but primarily as the means *to make processes operate more efficiently*. You get the benefits of this experience in exclusive Foxboro Services that insure better *applications* of instruments, more dependable *performance* of your installation, and *upgrading* of your own process control men. Typical Foxboro extra-value Services:

Application Engineering — Before any application of a Foxboro Instrument or System is recommended, it has been exhaustively group-studied by Foxboro Engineers with specialized knowledge of specific industry requirements and characteristics of the process involved. Resulting Application Engineering Data is available on request.



Scheduled Maintenance Service — For your protection against variations in production quality and process down-time, Foxboro makes available a Scheduled Service Agreement. Under this plan, a factory-trained Foxboro Technician calls at scheduled intervals to maintain your Foxboro Instrumentation at continuous peak efficiency.

Training Classes — For instrument men and engineers of Foxboro Instrument users, the Company offers intensive 3-week training courses in the use, mechanics, application and maintenance of instruments. Conducted by full-time staff, with lectures by engineering and research department specialists, in Training Center at Foxboro, Mass.

The Foxboro Company, 9210 Neponset Ave., Foxboro, Mass., U.S.A.

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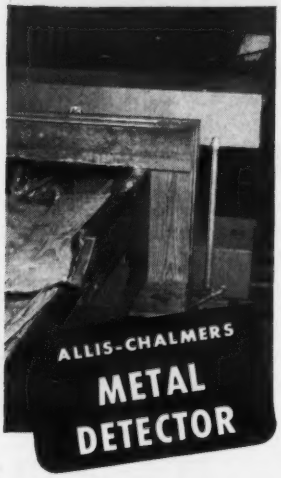
INSTRUMENTATION for the Food Industry

5489 on Reader Service Slip

Mr. Hi Frequency, the Electronic "Sleuth" Tracks Down Tramp Metal



Gives Positive Protection

THIS electronic Sherlock apprehends Mr. Tramp Metal before he can sabotage your quality product. Magnetic or non-magnetic particles, no matter how deeply embedded, cannot evade the piercing eye of the metal detector without triggering a warning or reject mechanism.

The Allis-Chalmers metal detector is economical to operate and is easily installed in any production set-up. For complete information, contact your nearby A-C office or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wis. Ask for Bulletin 15B7217B.

ALLIS-CHALMERS A-5285

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New... Improved

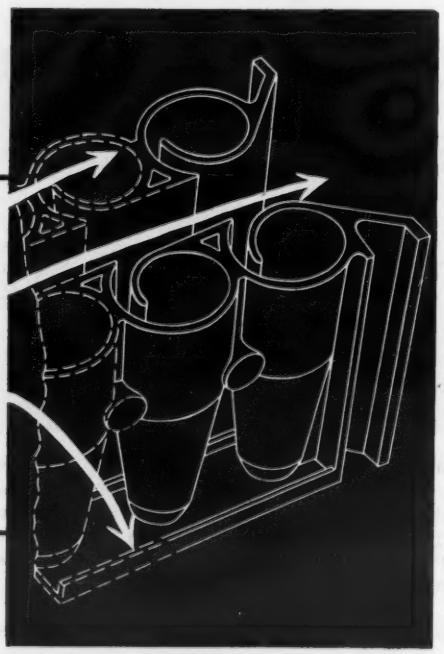
MICROCLONE DUST COLLECTOR

NEW *casting procets* provides smoother interior finish — "Cling-Free" surface.

NEW *inlet design* assures better distribution of air and material.

NEW *flange design* eliminates all protrusions in dust hopper — meets strictest sanitation requirements.

NEW *seal surface design* assures air-tight operation for highest efficiency.

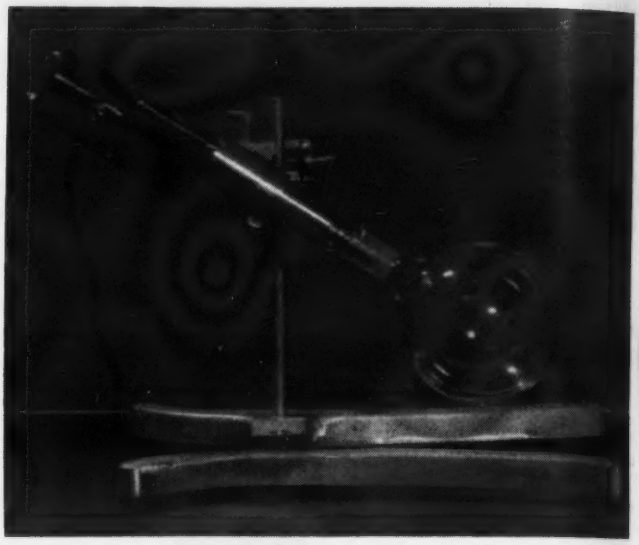


THESE MAJOR DESIGN IMPROVEMENTS on the widely used and highly regarded "Microclone" M-40-A Dust Collector mean ... *higher returns on your investment in food processing equipment.*

WRITE TODAY ... for more information and descriptive literature.

P. O. BOX 2520 **DUSTEX CORP.** BUFFALO 25, N. Y.

5491 on Reader Service Slip



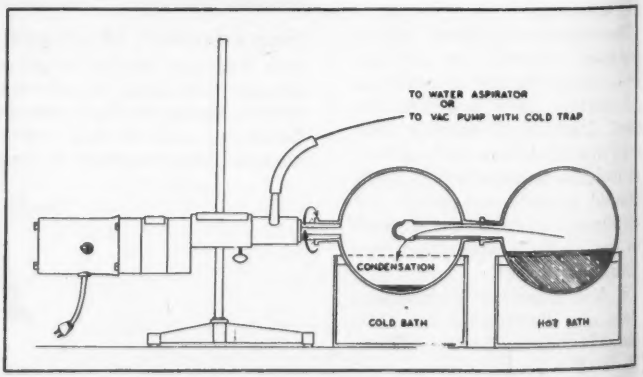
A motor spins the flask, spreading liquid in a fast evaporating film over inside of glass

Speed up evaporation without bumping or frothing

Constant rotation of flask spreads thin film of solvent over large area to dry all kinds of solutions

Laboratory evaporation of solvents, requiring heat, is often accompanied by bumping or frothing, resulting in an explosive action which can ruin experiments. Although boiling beads, porous stones, or some similar material placed in the solvent can help prevent this action, their use is not always successful.

A rotating evaporator, consisting of a polished monel shaft rotated by a universal motor, is the basis of a development to overcome this problem. The evaporator is clamped to a stand at an an-



Evaporator can be rotated in hot bath; also can be connected to a special rotating condenser as shown in diagram

gle of about 30°, and a flask with a ground glass standard-taper neck, about half full of liquid to be evaporated, is slipped over standard-taper 19/38 end of shaft.

Shaft and flask are rotated steadily, carrying a thin film of liquid up over sides and top of flask to expose a large surface from which evaporation takes place rapidly.

Shaft is so finely machined that fit is air tight, even without stopcock grease. Laboratory tests prove apparatus will hold 3 mm of mercury without vacuum grease. Neoprene O-rings and Teflon vapor seals also help keep apparatus vacuum tight. A standard 12/30 side arm is used to evacuate system.

Rotating evaporator is made by Rinco Instrument Co., 511 S. Prairie St., Greenville, Ill.

For more information circle 5492 on Reader Service Slip.

Develop quick test to replace BOD method for citrus wastes

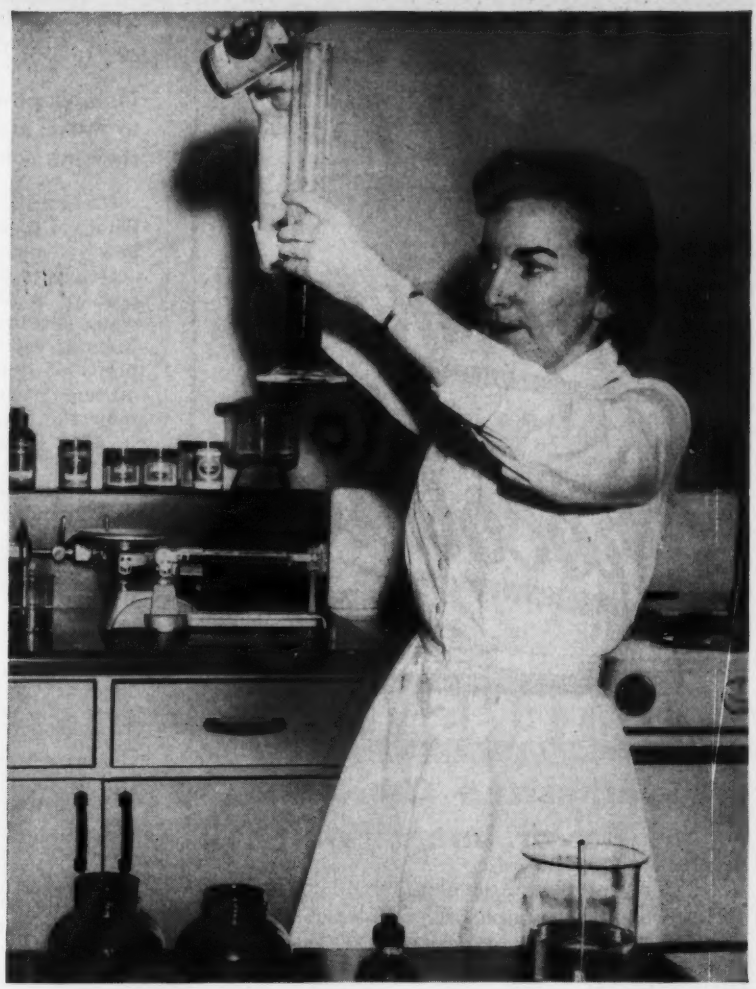
Workers at Citrus Experiment Station of University of Florida have developed a quick chemical test to replace the five-day BOD method for determining extent of treatment needed for citrus waste waters.

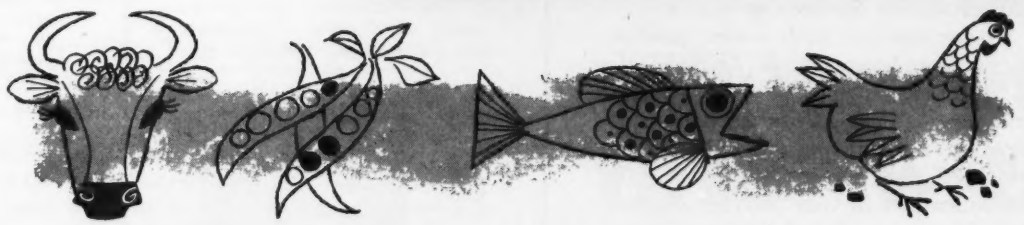
Test is essentially a refluxing of waste sample-acidified dichromate mixture, requires only ten minutes refluxing. Color of resultant mixture, measured by comparison standards or colorimeter, is measure of strength of waste water. Method may have application to other wastes also, but modifications would probably be necessary.

READER SERVICE

For more information on product developments, processes, or controls described in these articles . . . use the convenient, self-mailing Reader Service Slip opposite the inside back cover.

new ways to improve your product and profits





Animal, vegetable, fish or fowl—if your forte is food, Huron HVP (Hydrolyzed Vegetable Proteins) can help you enhance the quality and broaden the market for your products. This, of course, means extra sales and profits for you. In our modern, well-equipped Technical Service Laboratory, we will be happy to work with you to determine the proper use levels for your individual products.

***The new booklet,** "Huron HVP," will give you a wealth of information on specific applications of HVP in all phases of food processing. For your free copy, write, wire or phone Huron Milling Division, Hercules Powder Company, Wilmington 99, Delaware.*

HVP HURON MILLING DIVISION

Virginia Cellulose Department **HERCULES POWDER COMPANY** INCORPORATED *Wilmington 99, Delaware*

SALES OFFICES: 380 MADISON AVENUE, NEW YORK 17, N. Y. • 332 SOUTH MICHIGAN AVENUE, CHICAGO 4, ILL. • 120 MONTGOMERY STREET, SAN FRANCISCO 4, CALIF.

5493 on Reader Service Slip

New! Improves Chocolate!

INTENSITOL

Synthesized Chocolate Flavor Intensifier

Completely new development! Heretofore unobtainable flavor aromatics, produced in our laboratories, will dramatically improve the deliciousness of your chocolate flavored products.

In conjunction with cocoa powder or chocolate liquor add INTENSITOL to your product and you restore delicate volatile flavor aromas universally lost during manufacturing processes. This new synthesized chocolate intensifier in your product assures the ultimate in *flavor's richness, taste* and *aroma.*

Wonderfully improves:

cakes • cookies • puddings • syrups
icings • dry mixes • candies • ice creams
and all other chocolate flavored confections.

Send for samples, prices & information.

BALANCED BLENDS

FLAVOREX CO.

MAKERS OF FINE FRUIT JUICE FLAVORS
302 S. CENTRAL AVE., BALTIMORE 2, MD.

5495 on Reader Service Slip

Dissolve powder in water to make autoclave cleaning solution

Uses: Aids rapid removal of lime and scale from sterilizers and autoclaves.

Description: Compounded powder is easily mixed with water to provide solution. Functions effectively on deposits of lint from materials, oil scum from instruments, and minerals from water. Packed in 8-oz glass containers.

Benex-Two is available from Ion Exchange Products, Inc., 9349 South Cottage Grove Ave., Chicago 19, Ill.

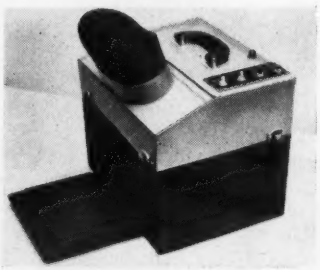
For more information circle 5494 on Reader Service Slip.

Inspection cabinet detects contamination

Complete assembly operates from line current or batteries

Uses: For application of fluorescent analysis to detection of contamination in foods, grain; identification of foreign fats in fluids; sanitary investigations.

Features: Unit is completely self-contained, all equipment, including darkroom, being combined within a single cabinet. All are ready for instant action at push of a button. Easily carried and can be operated on batteries.



Unit for contamination inspection of foods is push-button operated; measures 14x12x14"

Description: Complete unit includes both short and long wave ultra-violet lamps as well as white light for comparison purposes. Can be plugged in to any 110v AC/-DC line. Holds a 12" object with doors closed.

Would you like to receive FOOD PROCESSING personally?

It will be sent to you without charge or obligation . . .

. . . if you qualify
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If you are responsible for processing operations in an administrative capacity as plant superintendent, food technologist, chemist, engineer or equivalent responsibility . . . in a plant of substantial operations* where food processing is an important factor . . . FOOD PROCESSING will be sent to you without charge or obligation if you request it. Use form below. In requesting, be sure to answer all questions. If your firm is not rated or listed in standard references, indicate size of the company by capacity, annual sales or number of employees. Unless all information is given, magazine will not be sent.

*"Substantial operations" does not necessarily mean an extremely large plant. But requests for the magazine exceed supply so we must set standards to insure publication being sent where it can be used to best advantage.

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Please send me FOOD PROCESSING without charge or obligation

Name _____

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Main Products _____

Microscope can be positioned on level platform at the front of cabinet. Full illumination of stage and sufficient darkness for accurate study and analysis assured.

Mineralab fluorescence cabinet is available from Ultra-Violet Products, Inc., 5114 Walnut St., San Gabriel, Calif.

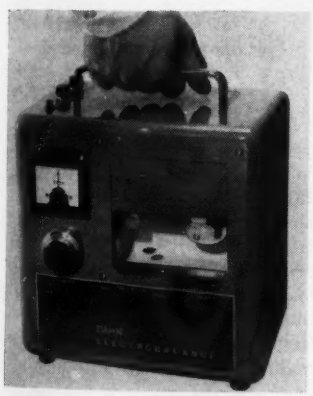
For more information circle 5496 on Reader Service Slip.

Micro weighings in a few seconds

Independent of vibration, air currents, temp., leveling

Portable micro-balance takes wide range of sample weights: 0-5, 0-10, 0-20, 0-50 mg, with precision of 0.02%. Accuracy is about 0.05% of full scale on each range.

High-precision performance is obtained without permanent mounting—balance can be easily moved about within plant, or even shipped from plant to plant. Close level adjustments are unnecessary, and operation is not hampered by vibration, air currents, or temperature.

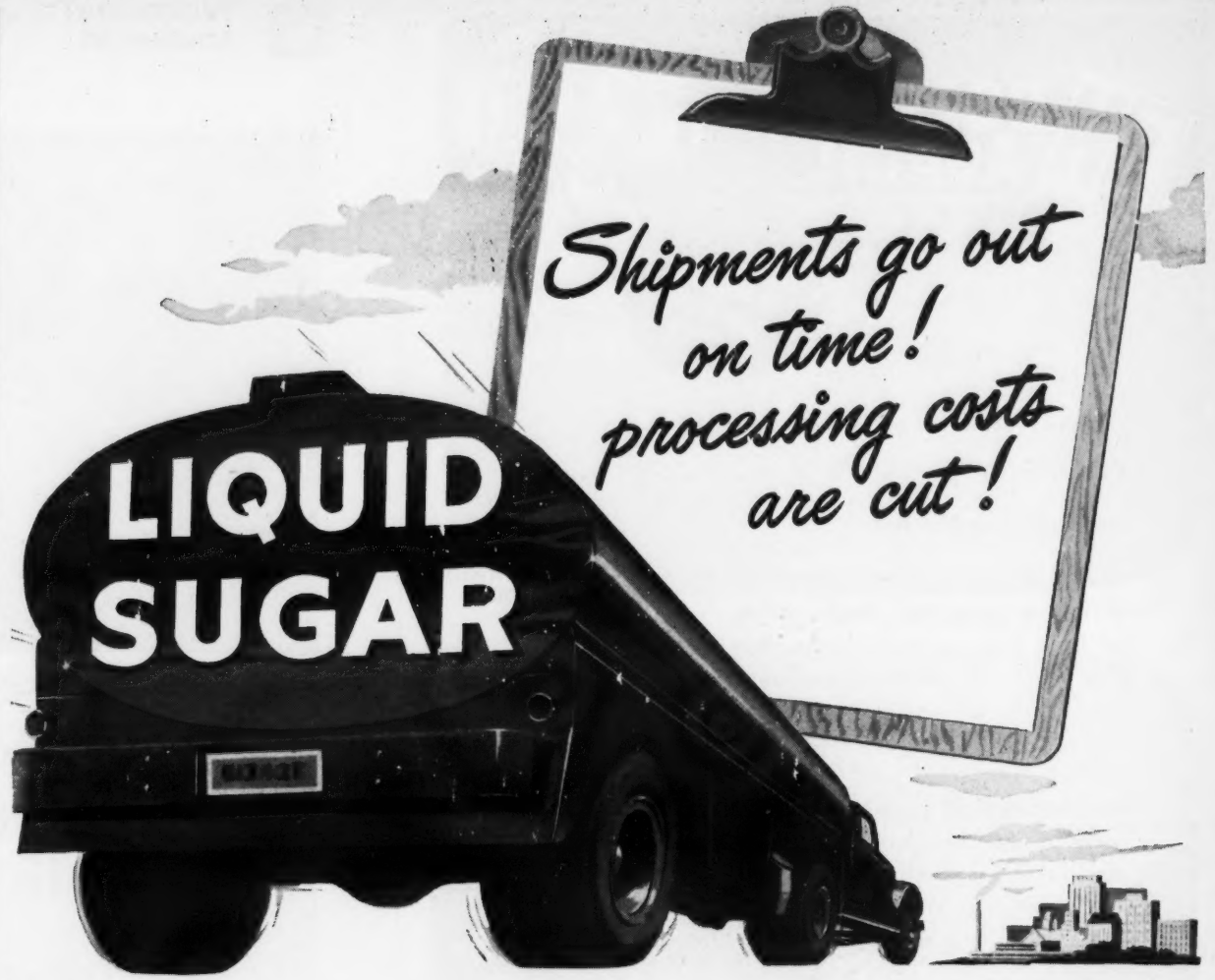


Accuracy is about 0.05% of full scale on each range

Operation is by electrical measurement of torque, requires less than a minute. No external power or utilities are needed. No special skill is necessary to operate balance.

Electrobalance is available from Central Scientific Co., 1700 Irving Park Rd., Chicago, Ill.

For more information circle 5497 on Reader Service Slip.



You save both time and money when you clarify sugar liquors with Celite* diatomite filter aids. Save time because Celite filtration lets you combine P_2O_5 lime defecation, decolorization and clarification *all* in one operation (and insures you of outstanding color removal and brilliant clarity, too). Save money because you use your existing mixing tanks and filters and reduce decolorizing vegetable carbon consumption. In addition, in bone char refineries, char filter loads are also reduced when Celite filtration is used.

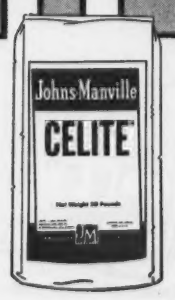
Celite also gives you important advantages over other diatomites. First, its lower wet density provides greater filter surface coverage . . . six bags do the work of seven bags of other diatomites. Second, you get more consistent results because Celite is more uniform. Each bag is mined and processed at the world's largest and purest commercial diatomite deposit . . . and sped to you direct or through J-M's nationwide warehouse network.

JOHNS-MANVILLE JM PRODUCTS

For more information on how Celite filtration can save you time and money and give you better filtration results, call your nearby Celite engineer or write Johns-Manville, Box 14, New York 16, N.Y. In Canada, Port Credit, Ontario.

Johns-Manville CELITE
diatomite filter aids

when you filter with CELITE



*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products

5498 on Reader Service Slip

WITH THIS NEW REMOVABLE CLAMP-TYPE VALVE . . .

For Bulk Pick-Up Trucks

Designed to replace conventional heavy plug-type flush valves on bulk pick-up truck tanks, this new "G & H" removable clamp-type unit is easily and speedily removed. Simplifies and encourages thorough daily cleaning. Available in all sizes — 1" through 3".

- **DISCONNECTS INSTANTLY NO TOOLS NEEDED**
- **ABSOLUTELY LEAKPROOF**
- **ALL STAINLESS STEEL LIGHT IN WEIGHT**

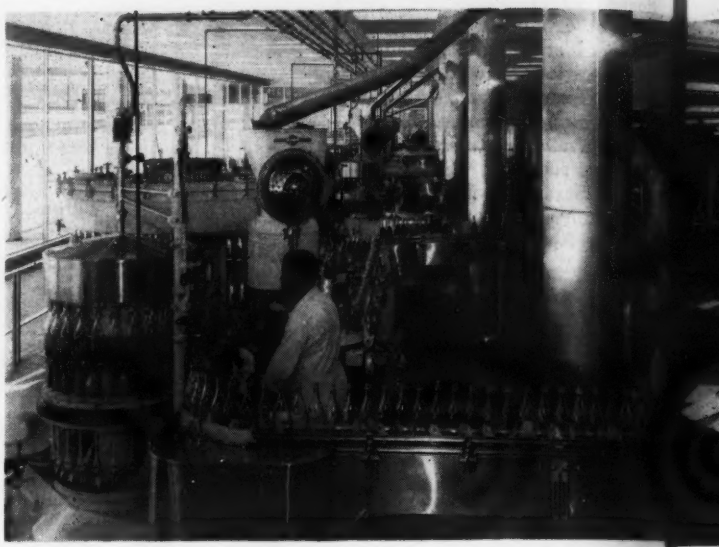
Exploded View, Showing Simple Assembly

Assembled Clamp-Type Valve Unit

SEND NOW for Descriptive Bulletin and Price List.

5499 on Reader Service Slip

fp **PROCESSING EQUIPMENT**



No-load full-load refrigerant cycle occurs five times an hour

135-ton absorption system uses steam at 12 psi to cool Vernor's ginger ale and air condition plant

Advantage of absorption refrigeration equipment at Vernor's

• **Load flexibility:** Absorption refrigeration machine has simple throttling capacity control and is able to operate at zero load. Absorption unit operates at full load when a 300 gallon batch of hot syrup is being cooled through a heat exchanger. When batch is cooled, absorption unit operates at zero load until next batch is ready for cooling. This full-load zero-load cycle occurs five times each hour at James Vernor Co., Detroit.

• **Economy of operation** and

Refrigeration absorption equipment installed at Vernor's ginger ale plant, in Detroit, operates on steam at 12 psi. Unit has capacity of 135 tons: about 75 tons of capacity serves combined peak air conditioning load for three central air conditioning apparatuses; a cooling load of about 60 tons, in processing ginger ale, uses remainder of the machine's capacity

As an air conditioning unit, the refrigeration absorption machine provides chilled water to air condition plant, offices, and fountain room where Vernor's ginger ale is dispensed for sale to general public

As part of processing equipment, unit supplies chilled water to cool simple syrup used in making Vernor's ginger ale. A plate type syrup heat exchanger with three cooling circuits takes hot syrup and cools it progressively from 214° F to 650° F in approximately 12 minutes by filtered water, cooling tower water, and chilled water from the absorption refrigeration machine

maintenance: Operating cost of absorption machine is less than for electric compressors of same capacity since, in Detroit, district steam costs less than electricity when both energy and demand charges are considered. Average annual cost of maintenance, labor, and material, according to John R. Crary, chief engineer at Vernor's, is $225.

• **Operates automatically:** No operator need be assigned to continuously watch the absorption machine. Takes a maximum of ten minutes to put machine on line, ready for full load. Unit operates automatically until time to shut it down.

• **Ability to operate long number of hours each year:** During months of April through December, unit operates 18 hr/day . . . or about 5,000 hr/yr. Each year of operation on this duty is equal to about three years operation on normal air conditioning load.

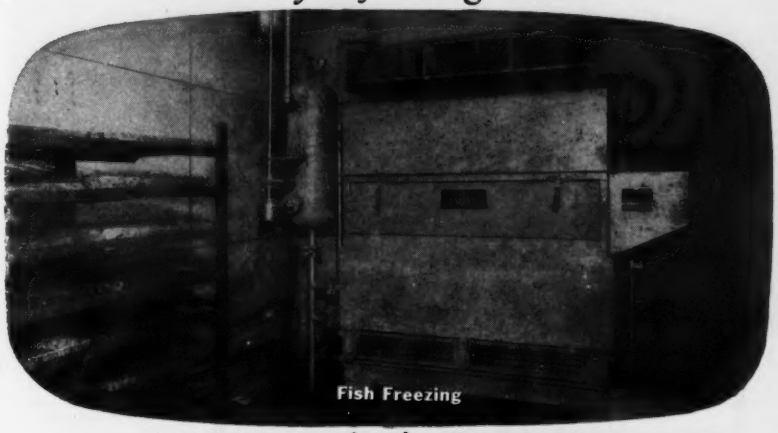
Refrigeration absorption machine is a product of Carrier Corporation, 300 S. Geddes St., Syracuse 1, N. Y.

For more information circle 5500 on Reader Service Slip.

NIAGARA "NO FROST"

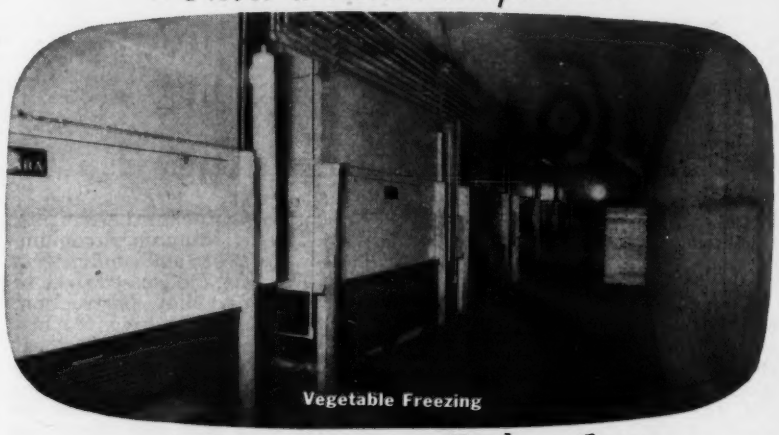
25 Years' Successful Experience

★ *Never any defrosting shutdown*



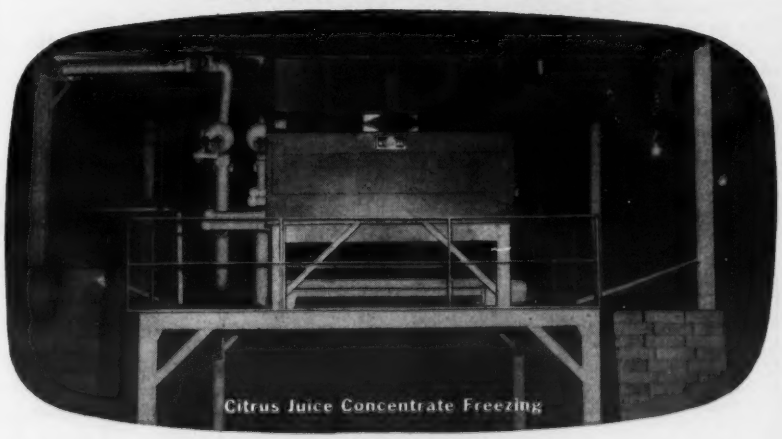
Fish Freezing

★ *Never a rise in temperature*



Vegetable Freezing

★ *Save Power . . . Reduce Costs*



Citrus Juice Concentrate Freezing

Write for Niagara Bulletin 105

NIAGARA BLOWER COMPANY

Dept. FP-10, 405 Lexington Ave. New York 17, N. Y.

District Engineers in Principal Cities of U. S. and Canada

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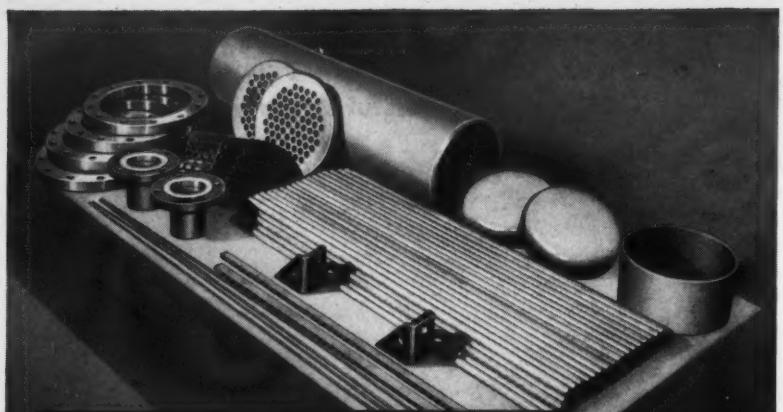


Pfaudler offers quick delivery on heat exchangers through a program of stocking assembled units and standard components.

Would *two-week* delivery help you decide where to buy a heat exchanger?

Look then to Pfaudler, where off-the-shelf delivery can solve many of your process problems in two weeks.

This stocking program applies to tube side 316 stainless steel heat exchangers with carbon steel shell in single- and double-pass, fixed tube sheet design. Capacities include 56, 104, 149, 216 and 316 sq. ft. Other standard FTS sizes up to 20″ shell diameters are quickly assembled to your specifications in approximately four to six weeks.

Pfaudler also stockpiles a complete line of flexible standard *components,* permitting quick delivery on many sizes of packed floating head, internal floating head and "U" bundle design types.

If your needs can't be met with standard stainless steel units, Pfaudler offers heat exchangers of many different alloys. Included are nickel, Inconel, monel, titanium, zirconium, Hastelloy, karbate and combination units of karbate and glassed steel, or glassed steel and alloy construction.

Call on Pfaudler's design department to help you solve your heat transfer problems. They'll be glad to give you the benefit of years of experience in the process industries not only with heat exchangers but other integrated Pfaudler process equipment.

New Heat Exchanger Bulletin

Bulletin 949, just off the press, contains 28 pages of informative data on Pfaudler's flexible standard and custom-built heat exchangers including applications, types available, design specifications and operating characteristics. Check coupon.

THE PFAUDLER CO., Dept. FP-107, Rochester 3, N.Y.

Please send Bulletin 949 on ☐ Heat Exchangers and the Following Additional Food Processing Equipment by Pfaudler: ☐ Conical Dryer-Blender ☐ Tanks—Mixing and Storage ☐ Titan Superjector ☐ Fillers—Rotary Piston and Gravity Types ☐ Evaporators—Film Type ☐ Mills—Wet Grinding.

Name _____ Title _____

Company _____

Address _____

City _____ Zone ____ State _____

5502 on Reader Service Slip

Electrically, thermostatically controlled purger for refrigeration

Development of an automatic, condenser-type purger is announced in a bulletin. Bulletin lists specifications for two models, one for up to 300 tons of refrigeration and the other for plants of over 300-ton capacity. Purger operates on principle that air and most condensable gases are lighter than ammonia refrigerant gas in normal operating mixtures. Therefore, if mixture is not agitated, air will rise to point where it can easily be vented.

Included in bulletin is a chart demonstrating this theory by comparison of densities of air and ammonia in mixture, at operating condensing pressures, and condensing temperatures.

Purger bulletin PE-700 is available from J. E. Watkins Co., 307 Lake St., Maywood, Illinois.

For your copy simply circle 5503 on Reader Service Slip.

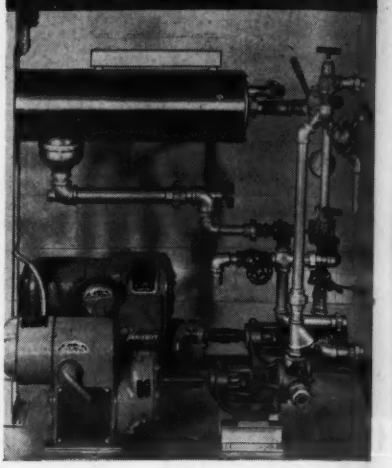
Ultrasonic tanks designed for low cost processing

Uses: For high intensity ultrasonic application in cleaning, degreasing, pickling, and electroplating of metals.

Features: Designed for low cost processing, tanks include high ultrasonic efficiency operating at a resonant frequency of 20 kcs/sec. Large capacity (5-gallon and 8-gallon) and operating efficiency make them effective for chemical, physical, and biological

Ultrasonic 5-gallon tank, shown, operates with 400-watt ultrasonic generator

Would **PRECISION PUMPING** help you too?



Thermal unit does successful job with Viking Pumps

Precision pumping by two Viking heavy-duty pumps contributes much to the highly successful operation of starch cooking units built by Thermal Equipment Corporation, Skokie, Illinois.

WHERE USED—Units cook starch continuously in many applications, including paper, textile, food and other fields. Example: unit easily cooks 25% paste of unmodified cornstarch.

HOW USED—With variable speed drives, the pumps are used to regulate the mixture of slurry and water in the pressure chamber. The slurry pump can be varied from 0.5 to 5.0 gallons per minute—the water pump from 5.0 to 20.0 gpm.

WHAT VIKINGS CAN DO FOR YOU

Whether you need precision pumping or have some other pumping problem, Vikings may be your answer. Vikings are the *best* answer for pumping many liquids—from viscous or thick semi-solids to light, liquefied gases. With Viking Pumps, you have: Self priming —smooth, even flow —controlled capacity—positive action—no splashing or pounding—no spasmodic operation—no foaming or churning.

For information, call on your nearby Viking Pump distributor, or write for bulletin 575ep.

VIKING—the leader, not a follower, in Rotary Pumps

VIKING PUMP CO.
Cedar Falls, Iowa, U.S.A.

In Canada, it's "*ROTO-KING*" pumps

See our Catalog in SWEET'S Plant Engineers File.

5504 on Reader Service Slip

processes, as well as for laboratory investigations where larger vessels are required.

Description: Large treatment chambers of processing tanks are #302 stainless steel with input and output drains to allow for recirculation and filtering of liquid medium. A new method of attaching reinforced transducer elements by riveting results in extreme ruggedness and increased efficiency in the conversion of ultrasonic energy. Ultrasonic tanks (Sonitanks) are made by General Ultrasonics Co., 67 Mulberry St., Hartford 3, Connecticut.

For more information circle 5505 on Reader Service Slip.

Makes ice at rate of 2000 lb daily

A selection of ice machines, including models suited especially to needs of food processors, is described in a 44-page illustrated booklet. Both cube and flaker units are included. Cubes produced in volumes of up to 500 lb per day are cylindrical and without sharp corners. Flakers have capacities to 2000 lb daily.

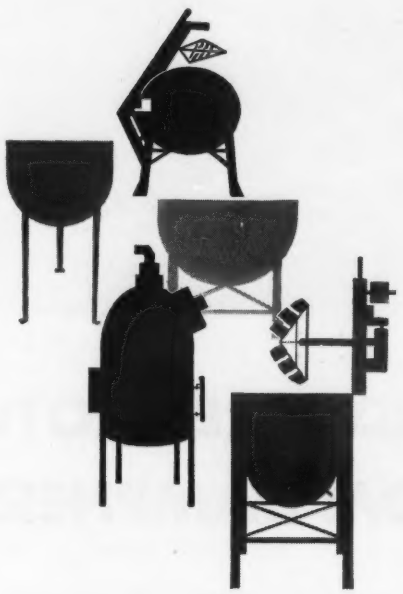
Booklet "How to Use an Ice Machine" is issued by American Gas Machine Co., 505 Front St., Albert Lea, Minn.

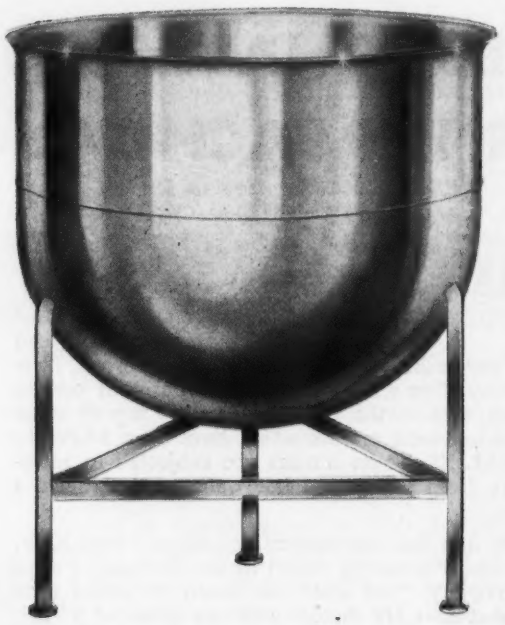
For your copy simply circle 5506 on Reader Service Slip.

"You went to Hawaii for pineapple processing techniques, remember?"

when you consider
what product contamination
costs you

KETTLES OF CRUCIBLE STAINLESS COST LESS





Install a kettle made of Crucible Stainless Steel and you're certain of this: it can't alter the flavor or change the appearance of food. It never takes flavor *away* either. It effectively resists the really harsh processing liquors and never chips, peels, or cracks. And no foods, no matter what corrosive acids they contain, can break down its smooth, shiny surface. That's why Stainless Steel kettles cut product contamination that wastes money.

It's this ability to save money that accounts for the growing impact of Crucible Stainless on the food industry. Cleaning is another good example: Stainless cleans 5 times faster than any other metal. And it comes clean so thoroughly that Stainless equipment can be used on many jobs — flavor never carries over from one product to another.

In the long run, the more equipment you have made of Crucible Stainless, the less you'll pay to process food.

To get more facts about Crucible Stainless, take either of these simple steps: (1) write for free 40-page booklet discussing the use of Stainless Steels in the Food Processing Industry, or (2) contact Crucible Steel Company of America, The Oliver Building, Mellon Sq., Pittsburgh 22, Pa.

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

5507 on Reader Service Slip

Seabrook Farms Company, Seabrook, New Jersey, from the air.

"USED TO HAVE TWO AND THREE MOTORS BURN UP EACH DAY FROM DAMPNESS..."

SAFE-T-SEAL

"Now," says C. J. Cox, Electrical Department Head of the Seabrook Farms Company, Seabrook, New Jersey, "we have not had one burn-out due to dampness in the last six years on any of some one-thousand motors which have been SAFE-T-SEALED. These motors are subjected to moisture from steam and hot water several times a day."

"At first the cost seemed exorbitant," says K. F. Milde, Purchasing Agent of the Seabrook Farms Company, "but when we found we could treat about 25-1 HP motors with one gallon of SAFE-T-SEAL the cost of $8.00 per motor was so small in comparison to the rewind and shut-down costs that we have practically every motor in the plant operating under moisture SAFE-T-SEALED."

If you can use this kind of performance in your EXISTING electrical equipment, such as electric motors, switches, coils, solenoids, transformers, and conduits, contact your nearest Authorized SAFE-T-SEAL Distributor listed at right:

Authorized

SAFE-T-SEAL Distributors . . .

Smith of Philadelphia
1024 Race Street
Philadelphia 7, Pennsylvania

J. J. Glenn & Company
605 West Washington Boulevard
Chicago 6, Illinois

George C. Borthig Company
State Highway No. 1
East Rutherford, New Jersey

The Huse-Liberty Mica Company
Peabody Industrial Center
Peabody, Massachusetts

Electrical Insulation Suppliers
500 Means Street, N.W.
Atlanta 18, Georgia

For the name of your nearest Authorized SAFE-T-SEAL Dealer

Write, wire or phone:

SAFE-T-SEAL LABORATORIES
6087 Sunset Boulevard, Hollywood 28, California
Phone: HOllywood 3-6757 Cable: SAFETSEAL

5508 on Reader Service Slip

Condensable vapors handled by two-stage vacuum pump

A two-stage vacuum pump has been developed to handle systems containing considerable amounts of condensable vapors. Pumps have the ability to remove condensable vapors and, at the same time, keep a high pumping efficiency.

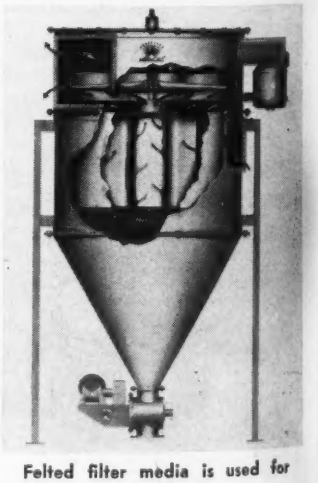
Two-stage pump is made as one integral unit, consisting of a high vacuum stage and a fore or backer stage, powered by a single motor. Used for both dry and wet systems, pumps have rated capacities from 28 to 880 cfm.

Two-stage vacuum pumps were designed by Beach-Russ Co., 50 Church St., New York 7, New York.

For more information circle 5509 on Reader Service Slip.

Low-cost dust control unit combines features of dust filter, cyclonic separator

Uses: Especially suited for separating product from airstream in pneumatic conveying system.



Felted filter media is used for filter sleeves

Features: Unit is designed for automatic, continuous operation. All moving parts of filter are located on clean air side to assure long life for mechanical assembly.

Description: Dust control unit combines features of cyclonic dust separator, and incorporates high efficiency of dust filter. Employs Hersey principle of high velocity reverse air cleaning, but differs from the usual Hersey principle in that dust is deposited on outside of filter sleeves. An inner liner surrounds filter sleeves, and dust-laden air travels in a cyclonic path, separating dust particles before air carrying the "fines" enters filter chamber.

Product discharge is handled automatically and continuously by means of a rotary valve.

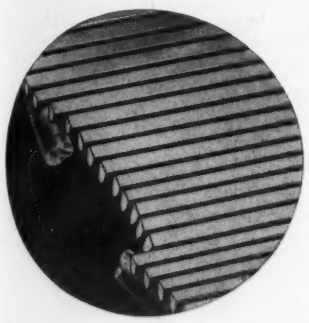
Dust control unit is a development of The Day Sales Co., 810 Third Ave., N.E., Minneapolis 13, Minn.

For more information circle 5510 on Reader Service Slip.

Stationery slurry screen offers high capacity with no moving parts

Uses: Continuous wet screening of slurries containing non-fibrous solids.

Features: Unit has no moving parts, requires no power for operation. Separations are made in 8 to 48 mesh range, with capacities ranging from



Compact screen comes in four sizes, from 1 to 4 ft wide

200 gal/ft of width/min for 48 mesh, to 500 gal/ft of width/min for 8 mesh.

Description: Screen is concave, horizontal-wedge-bar type, secured in stationary housing. Feed strikes curved surface of screen tangentially.

(*Continued on next page*)

FOR EFFECTIVE SPRAYING
AT LOWER COST
LIQUID
remember final control is
the SPRAY NOZZLE you use!
In design . . . choose the Spray Nozzles that give you proper performance, with exact spray pattern, impact, spray angle and capacity. In application . . . be sure the nozzles as supplied are produced to close tolerances. Metallurgically, make certain the spray nozzles fit your use.
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5512 on Reader Service Slip

need a pump that assures
LOW OVERALL COST

?

Look into these DOUBLE-SUCTION pumps for general hydraulic service

- High Efficiency plus
- Low maintenance costs mean

Lowest overall expense year after year

Heads: to 450 ft.
Capacities:
to 55,000 gpm.

Write for
Bulletin 7057-C

10-589

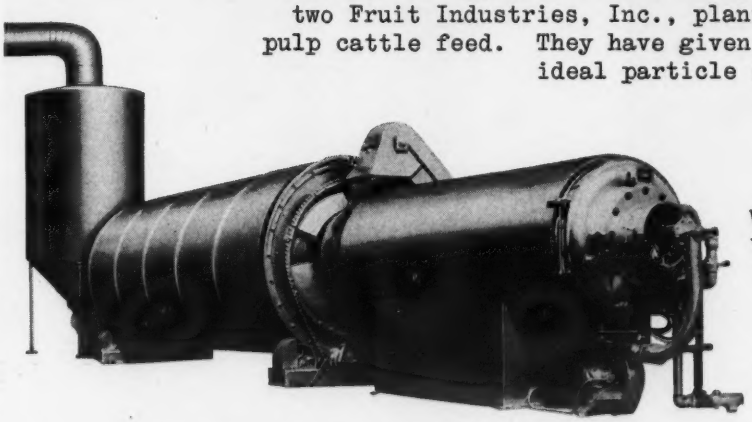
Ingersoll-Rand
11 Broadway,
New York 4, N.Y.

5513 on Reader Service Slip

4 Heil Dryers make citrus pulp feed!

"We use one 6,000 - lb and three 15,000 - lb Heil dryers at our two Fruit Industries, Inc., plants in Florida to produce citrus pulp cattle feed. They have given us excellent moisture control, ideal particle size, economical and dependable service. The pulp comes from tons of oranges squeezed for fresh juice. The juice is refrigerated and shipped by water to New York City and distributed through local milk deliveries as far west as Iowa."

Anthony T. Rossi, President
Fruit Industries, Inc.



Food by-products are carried on a stream of hot air in the Heil dryer. Having three cylinders in one drum accurately controls moisture and lowers costs by—

Automatically providing a 3-stage drying process with changing temperatures and air velocities ideally suited to changing moisture content.

Automatically establishing correct exposure time for each particle, based upon weight due to moisture content.

Making use of radiant heat given off by center and intermediate cylinders.

Compound showering flights assure ideal utilization of the drying medium, maximum air activity in all areas of the drying drum, and maximum evaporating capacities within a compact machine.

WRITE, WIRE or CALL for further information.

THE HEIL CO.

(Manufacturers of Ardrier Dehydrators for the Arnold Dryer Co.)

3000 W. Montana Street, Milwaukee 1, Wisconsin

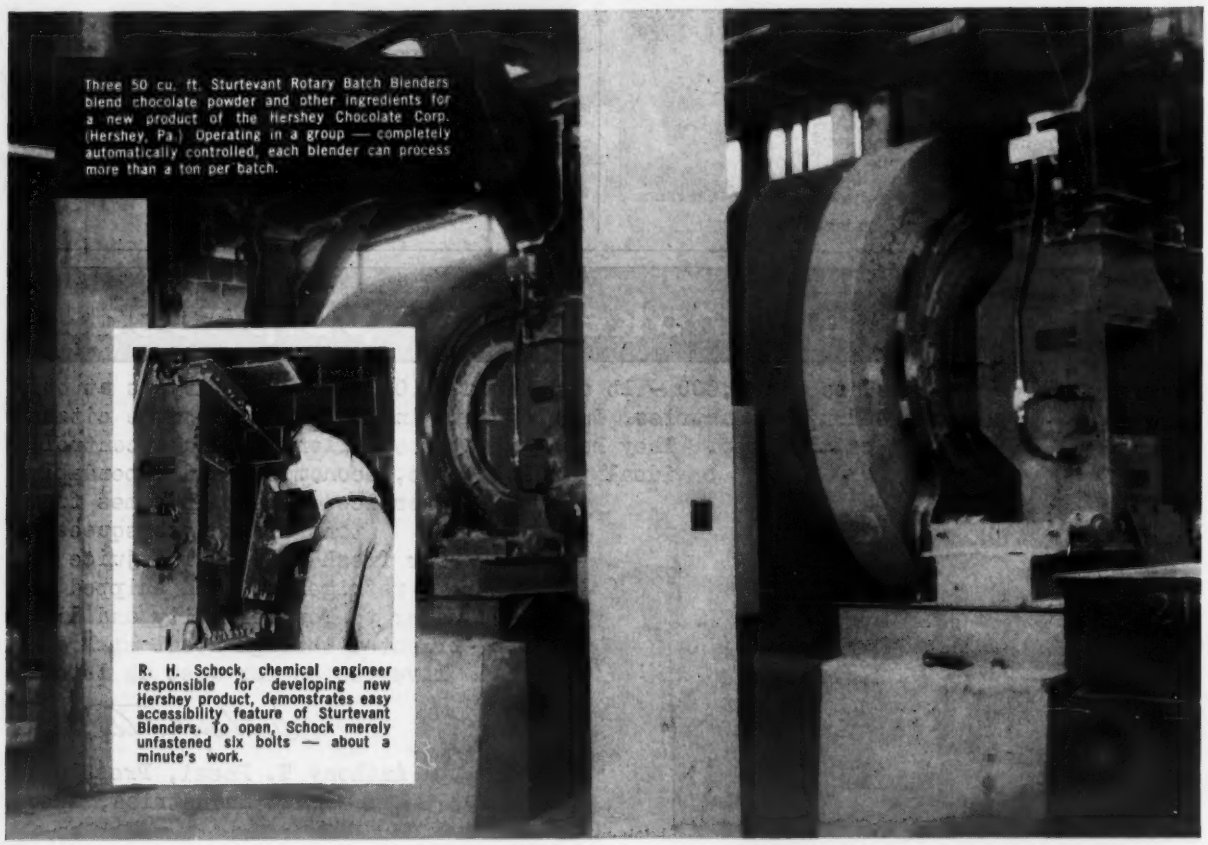
5511 on Reader Service Slip

Sturtevant Blenders Help Hershey Control Consistency of New Product

Every chocolate lover knows that the texture and flavor of Hershey products always can be depended upon. Consistency is important to the Hershey people. With a new product just developed, they control consistency by using carefully tested ingredients, weighed automatically, and then mixed in Sturtevant Blenders. Operation of the Blenders also is automatic — even to their timing.

Consistency is a problem to many food manufacturers and processors, and frequently an all-important step in its attainment lies in blending. Sturtevant Blenders start delivering highly intimate blends in as little as 1 to 2 minutes — an entire blending cycle takes only 3 to 5 minutes. Consistency of each batch is assured by the Sturtevant 4-way blending action. The interior scoop distributing system operates gently, yet always produces a thoroughly integrated blend.

Sanitation is also of prime importance in food plants. Sturtevant dust-sealed design keeps ingredient fines inside the drum, oil and grease outside (no bearings inside drum). Moreover, drums are self-discharging, leaving little residue. 'Open-Door' accessibility allows entry and inspection in a matter of minutes. Complete cleaning can be done automatically (with the installation of injection sprays) or manually — with practically no downtime. Hershey, for example, keeps its three Sturtevants clean with the expenditure of only an hour per week of maintenance time.



Three 50 cu. ft. Sturtevant Rotary Batch Blenders blend chocolate powder and other ingredients for a new product of the Hershey Chocolate Corp. (Hershey, Pa.) Operating in a group — completely automatically controlled, each blender can process more than a ton per batch.

R. H. Schock, chemical engineer responsible for developing new Hershey product, demonstrates easy accessibility feature of Sturtevant Blenders. To open, Schock merely unfastened six bolts — about a minute's work.

Sturtevant Rotary Batch Blenders are available in nine standard models with capacities ranging from 25 to 900 cu. ft. Operation may be automatic, semi-automatic, or manual. Liquid injector pipes may be added for injecting liquids during blending or for rinsing afterwards. Materials of construction are carbon steel, stainless or Monel metal. Write today for descriptive brochure.

STURTEVANT
MILL COMPANY
122 Clayton St., Boston 22, Mass.
CRUSHERS • GRINDERS • PULVERIZERS • MICRON-GRINDERS
AIR SEPARATORS • BLENDERS • MIXERS • FEEDERS
SCREENS • ELEVATORS • CONVEYORS

5514 on Reader Service Slip

(Continued from preceding page)

Undersize material is collected in lower part of housing and discharged; oversize flows across lip at base of screen.

Particle size separation is controlled by openings between wedge bars. Distance between bars is approximately twice dia of largest particle desired in undersize fraction.

DSM Screen is product of Dorr-Oliver Inc., Barry Place, Stamford, Conn.

For more information circle 5515 on Reader Service Slip

Product damage minimized in water blancher with perforated flights

Perforation of the flights of a screw conveyor allow free flow of water back through the flights, while product is conveyed forward. Thus, flow of water around the screw in opposite direction of product being blanched is lessened. This gentler action, plus maintenance of optimum clearance between trough and flights means less damage to fragile products.

Perforated flights have 24-inch diameter, permitting shorter travel to reduce product damage

Damage is further minimized by use of perforated out-curved paddles at discharge end of blancher, which lift product onto a draining screen in the discharge chute. Curved design of lifting paddles prevents return of any

portion of product to rotating flights, while perforations assure that water will not be lifted and discharged with product.

Thermascrew water blancher was developed by Rietz Manufacturing Co., Santa Rosa, California.

For more information circle 5516 on Reader Service Slip.

Select water jet exhausters and compressors to meet operating requirements

Complete line of single-nozzle and multi-nozzle water jet exhausters, water jet laboratory vacuum pumps, and barometric hydro-vac exhausters for pump priming, handling air and evacuating vessels, and for mixing gases and liquids in continuous processes is described in 15-page bulletin.

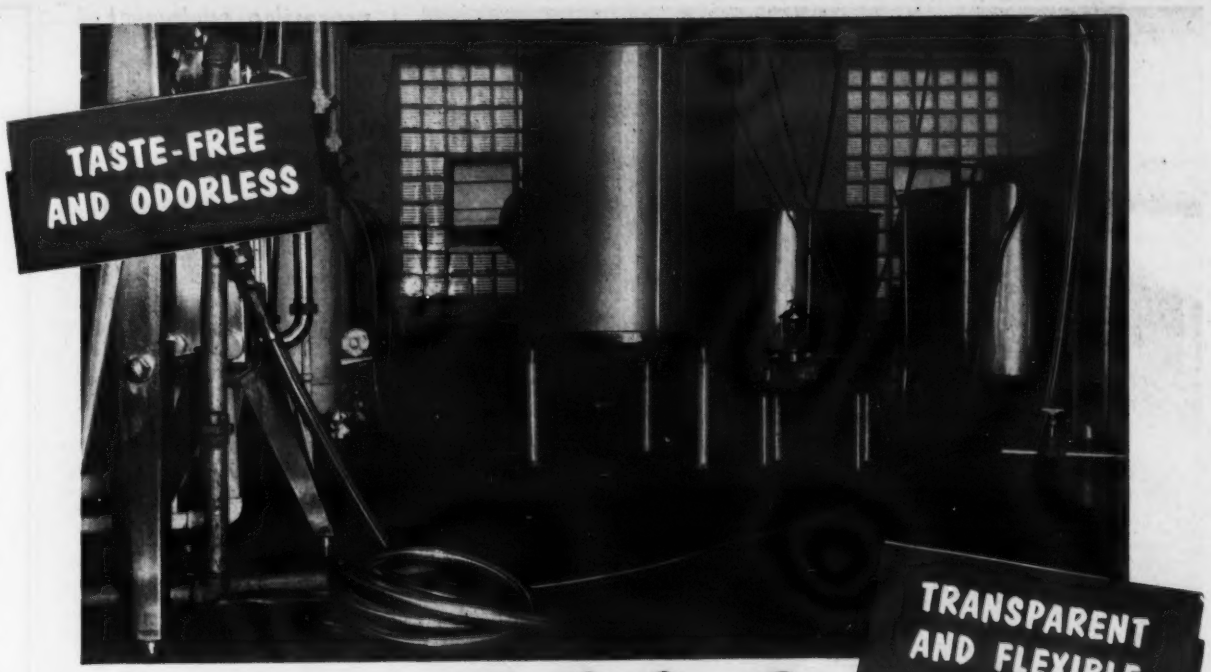
Included is application, construction, and operation information on each type exhauster, along with capacity curves, capacity ratios, and water consumption tables to help in selecting proper type and size exhauster to meet specific operating requirements. Pump priming capacities for both single-nozzle and multi-nozzle are shown in tabular form. Bulletin also shows several exhausters designed for service with corrosive vapors, including carbon-lined, stainless steel, rubber-lined, and Haveg types.

"Water Jet Exhausters and Compressors", bulletin 4P, is available from Schutte and Koerting Co., Dept. JA-3, Cornwells Heights, Bucks County, Pennsylvania.

For your copy simply circle 5517 on Reader Service Slip.

READER SERVICE

For more information on equipment described in these articles . . . use the convenient, self-mailing Reader Service Slip opposite the inside back cover.



TYGON B44-3
food and beverage hose

The Golden Age Beverage Co., Inc., of Akron, Ohio, franchised bottlers and distributors of Pepsi-Cola, use Tygon Formulation B44-3 Transparent Flexible Plastic Tubing extensively in their Pepsi-Cola operation. Liquid sugar and syrups are piped to process vats, prepared mixes are pumped to storage tanks . . . all through 2" i.d. x 2½" o.d. Tygon B44-3 Food and Beverage hose.

Tygon B44-3 Tubing was chosen for this operation because of its many outstanding advantages over other piping mediums. For example, because it is non-contaminating and totally inert to food acids and alkalis, there is no possibility of flavor taint or odor resulting from its use. Its glass-like clarity enables operators to visually check contents at any point.

Tygon B44-3's flexibility makes it adaptable to any layout. It can be used in long continuous runs without extra joints or couplings, and if desired, hoses may be interchanged or simply moved from one application to another. The highly polished bore permits fast, thorough cleansing—Tygon lines may be uncoupled, washed or steam flushed — and be back in service in minutes. Fifty-five bore sizes from 1/16" to 3" i.d. insure a size for every need.

Consider for a minute how taste-free, odorless, transparent flexible "piping" can benefit your operation . . .

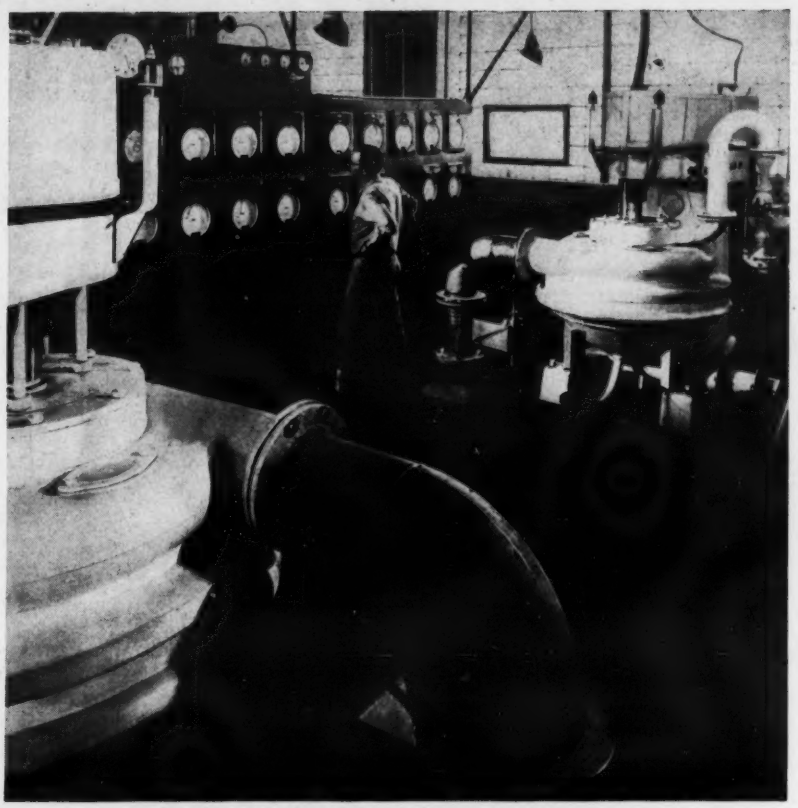
Send for Bulletin T-97. It's yours for the asking and gives the complete story on Tygon B44-3.

Plastics and Synthetics Division

U. S. STONEWARE
AKRON 9, OHIO

365E

5518 on Reader Service Slip



Two of the Merco Centrifuges installed at Clinton Corn Processing Company

Better Starch at Clinton with **Merco Centrifuges...**

At Clinton Corn Processing Company, a Division of Standard Brands Incorporated, fifteen Merco Centrifuges of three different designs give increased recovery of a higher quality starch . . . at reduced processing costs. The first unit was ordered in 1937, and today Merco Centrifuges are used at Clinton for a two stage Primary Separation system and for Gluten Thickening.

In addition to the Merco Centrifuges, Clinton has recently ordered a battery of TM DorrClone clarifiers, newest development in centrifugal equipment for the starch industry. These units will be used for filtrate clarification and thickening of recovered filtrate.

For more information on Dorr-Oliver centrifugal equipment for wet separations, write Dorr-Oliver Incorporated, Stamford, Connecticut.

DorrClone, Merco, T.M. Reg. U.S. Pat. Off.

DORR-OLIVER
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STAMFORD · CONNECTICUT · U.S.A.

5519 on Reader Service Slip

processing equipment

Reprint tells how Dulany prevents refrigeration plant failures

Eight-page article describes experience of J. H. Dulany & Son in operation and maintenance of rotary booster compressors in refrigeration plant. Illustrated reprint describes functions of essential elements, includes detailed steps for inspection, overhaul, reassembly.

Copies of "Prevention of Refrigeration Plant Failures" are available from Freezing Equipment Sales, Inc., York, Pa.

For your copy simply circle 5520 on Reader Service Slip.

Non-clog pumps feature impellers which trim to any desired diameter

Uses: For elevating sewage, pumping sludge, handling heavy settleable solids, effluent, and other wastes.

Features: Wide range of operation, since single-passage impellers may be trimmed to various diameters to meet the requirements of other heads and capacities. Dynamic and hydraulic impeller balance is retained without need for separate counterbalance.

Single-passage impeller may be trimmed at factory or by user

Description: Horizontal and vertical non-clog pumps. Single passage impellers in pumps have range of sizes from 3" to 5", inclusive, suction and dis-

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charge diameters. Discharge may be turned to various positions, and casings have clean-out opening. Ready access to impeller area is provided by detachable suction and packing covers.

Non-clog pumps (Aurora Mono-Vane) are manufactured by Aurora Pump Div., The New York Air Brake Co., 76 Loucks St., Aurora, Ill.

For more information circle 5521 on Reader Service Slip.

4-page bulletin describes processing equipment

Processing equipment for various industries is illustrated and described in 4-page bulletin. Equipment shown includes hammer mills, double and single disc attrition mills, single and double roll crushers, and magnetic separators.

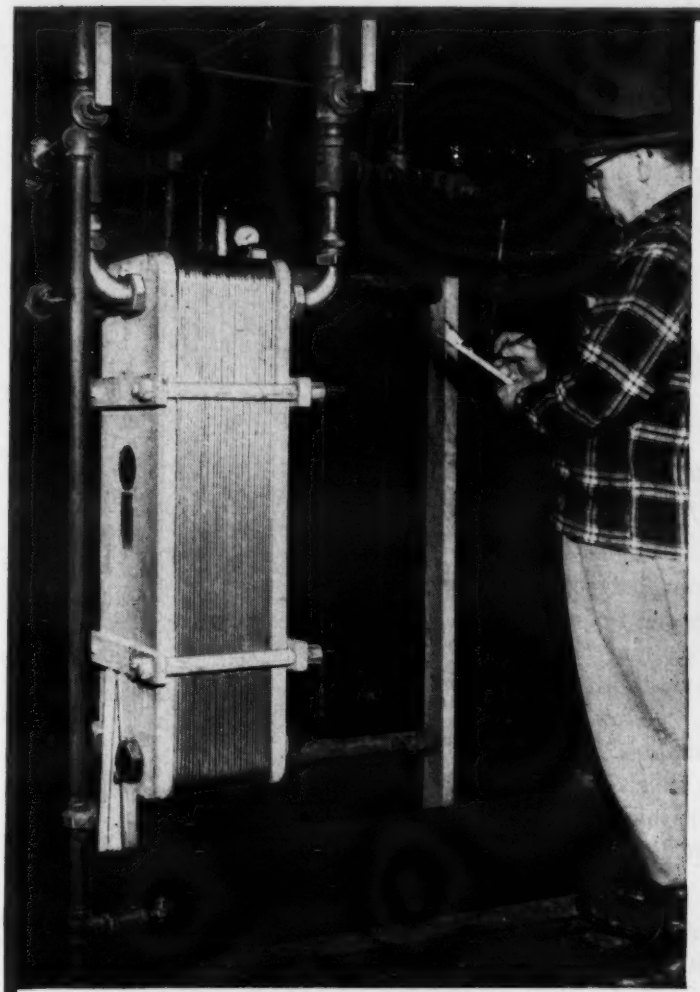
Cleaning, separating, dehulling, and delinting equipment for the oil, milling, and asbestos industries; as well as roasters, grinders, texturizers, cooling cars and tables, cleaners, classifiers, and blanchers for use in nut and food processing are included.

Bulletin 57, "Bauer Processing Equipment", is available from The Bauer Bros. Co., Springfield, Ohio.

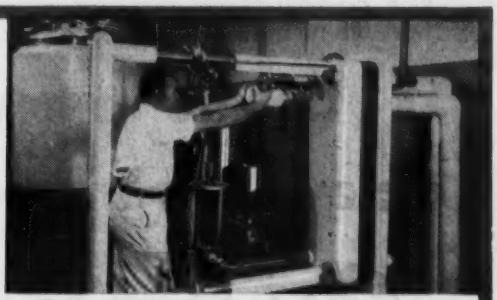
For your copy, simply circle 5522 on Reader Service Slip.

"The liner's almost intact, chief, but the walls are awful flabby."

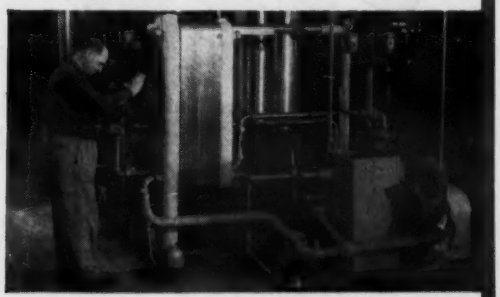
"5 times more cooling with less than half the cooling surface"



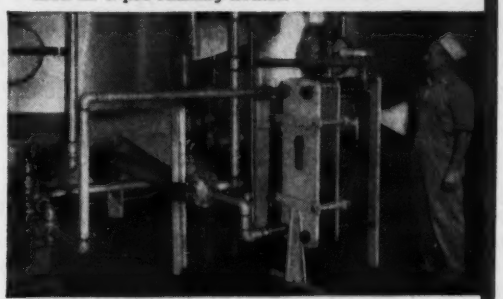
Irish Moss Filtrate Cooler. Mr. Neal F. Fogg checking performance of 30-plate "Superplate" heat exchanger cooling Irish Moss filtrates from 149° down to 90° F.



Sugar Liquefier — Cherry-Burrell "Superplate" 500 gallon-per-hour syrup cooler in a large beverage plant.



Pre-Canning Heater. 1500-gallon-per-hour "Superplate" heat exchanger in a beverage plant, used as a pre-canning heater.



Chocolate Liquor Heater. 5000-pound-per-hour "Superplate" heats chocolate liquors to 250° for cocoa butter extraction process.

"Your 'Superplate' plate-type heat exchanger sure solved our cooling problem," says Neal F. Fogg, Plant Engineer of Algin Corp. of America. "We had two shell and tube heaters, but couldn't get enough temperature drop to cool Irish Moss filtrates to 90°.

"Clogging was a constant problem, too. Not to mention gasket blowouts due to pressure build-up.

"So we switched to 'Superplate' . . . easily get our needed 55° temperature drop . . . which is five times more cooling than we used to get with two coolers. Clogging no longer a problem. And our first year was 100% maintenance free."

Not just a cooler

Versatile "Superplate" heats, cools, regenerates and Shortime pasteurizes almost any liquid. Electropolished 304 or 316 stainless steel plates have from *two to five times more heat exchange surface per pound* of product than tubular exchangers.

"Superplate" saves money, too — through reduction of heating and cooling costs by regeneration . . . through elimination of product evaporation and shrinkage . . . through space savings.

See your Cherry-Burrell Representative. Let him prove what "Superplate" can do for your product. Or write for literature.

CHERRY-BURRELL CORPORATION
427 W. Randolph Street, Chicago 6, Ill.

Dairy • Food • Farm • Beverage • Brewing • Chemical • Equipment and Supplies
SALES AND SERVICE IN 58 CITIES—U.S. AND CANADA

5523 on Reader Service Slip

for the butcher,

the baker,

the candy-stick maker . . .

Oakite announces a new, superior detergent

Super-Det

Here is a new detergent in a class all by itself. Oakite Super-Det has every quality of the finest detergent—only more so!

For instance, if you want fast wetting-out action, Oakite Super-Det stands out a mile ahead of ordinary detergents. Or is it all-round cleaning ability you want? Oakite Super-Det is a star performer on *dozens* of different types of food soils. How about free-rinsing properties . . . low concentration required . . . water-softening action . . . safety to metals, rubber, glass—and hands? Ordinary detergents might feature a single one of these desirable qualities. Oakite Super-Det features *all* of them.

Where superior sanitation is required, as in food plants, Oakite Super-Det is ideal. It's designed for packers, canners, breweries, frozen food processors, meat packers, bakeries, dairies.

Ask your local Oakite Technical Service Representative to demonstrate Super-Det in your own plant under your own conditions. Or write for details to Oakite Products, Inc., 26G Rector Street, New York 6, N. Y.

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5524 on Reader Service Slip

Basic parts of wire belt washer are mobile cart (a), wash and rinse tanks (b), drip pan (c), washing head (d), and pumping unit (e). On the floor, are hoses for connecting pump to water tanks and to washing head

Wire belt washing made automatic

Mobile unit requires only one operator to wash, rinse, dry belts to 24" width . . . eliminates dismantling belts from conveyor

By using new mobile washer, wire belts can be cleaned automatically without removal from the conveyor frame. Only one operator is needed to place washer in position on conveyor. Unless belt is extremely dirty, just three passes of the belt through the washing head are necessary to clean it.

Accompanying photos show compactness of washer. Except for water tanks, all washer parts fit into mobile cart, which provides easy transportation to any desired plant location. Parts include the washing head, drip pan, and pumping, heating, and flow control units.

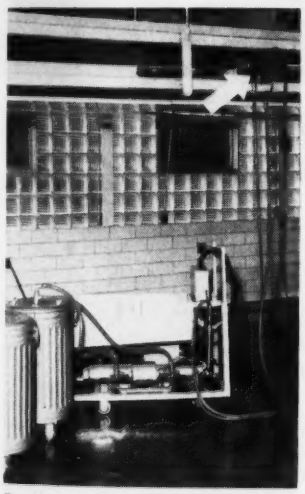
Washing head is constructed of aluminum, can readily be carried by operator up a step-ladder for difficult installations. The head contains four rotary brushes. To remove dirt, conveyor belt is raised sufficiently to be placed between these brushes, which rotate against both sides of belt as well as through bath of cleaning solution. During manufacturer's research pe-

riod, cleaning agent was Oakite #161, which is an inhibited aluminum material, and was used at ½ oz/gal at temperatures of over 160°F.

Drip pan slides under wire belt and is clamped on conveyor frame. Pan is equipped with stationary brushes which remove drops of water from belt as it leaves the washing head. Because of high temperature of the cleaning solution (nearly 200°F), moisture on the belt evaporates quickly.

Pumping, heating, and flow control devices are built into mobile cart. Pumping unit consists of a motor with pumps mounted at each end — one for pumping solution from tank into washing head, the other for pumping solution from head back into tank.

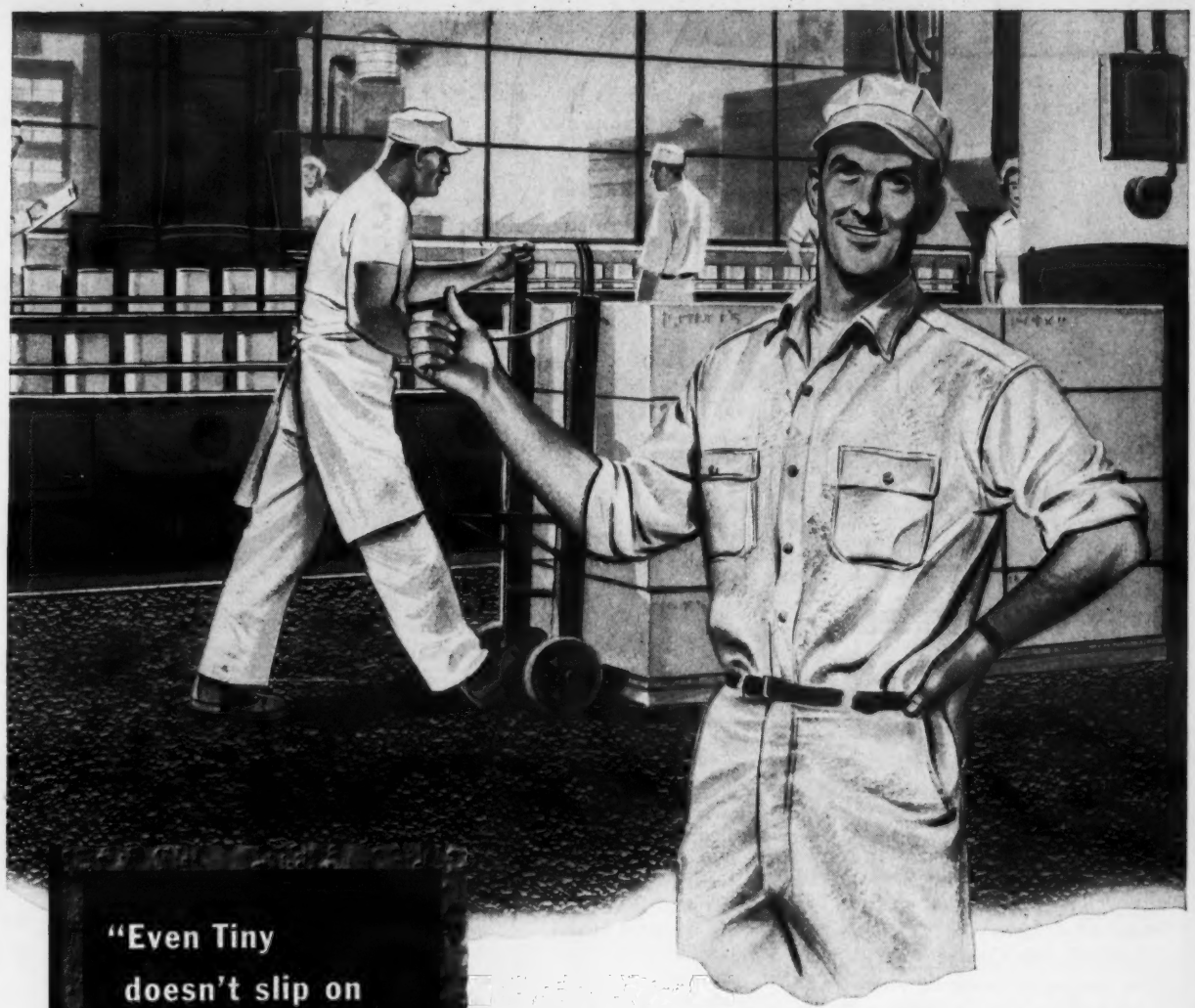
Heating unit acts only as a booster to maintain temperature while washer is in operation. Therefore, tanks should be filled with water around 180°F. The heater has an automatic thermostat, set at 200°F to prevent overheating. It operates on 220 or 440 v, 3 phase, 60 cyc line.



To clean wire belt, washing head (arrow) remains stationary on conveyor frame; belt moves through washing head and over drip pan

Wire belt conveyor washer is development of Union Steel Products Co., Albion, Mich.

For more information circle 5525 on Reader Service Slip.



"This new stuff" is the world's only abrasive rolled steel floor plate—A.W. ALGRIP—a super-safe footing under the *most hazardous* slipping conditions—including those of the food and meat processing and packing industries.

"Even Tiny doesn't slip" sums up the ALGRIP safety story. ALGRIP's exceptional non-slip properties result from a patented process in which a grinding-wheel type abrasive is rolled—*not coated*—to a controlled depth as an integral part of tough steel plate. Usage merely exposes more abrasive.

Make a test installation in your worst slipping area. Use ALGRIP as an overlay or as independent flooring—it fabricates easily and requires no maintenance. Try it—and watch your ALGRIP installation pay for itself as accident and insurance rates go down.

ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

ALGRIP—*approved for safety by Underwriters' Laboratories*

ALAN WOOD STEEL COMPANY
Conshohocken, Pa.

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OTHER PRODUCTS: A.W. SUPER-DIAMOND rolled steel floor plate—Plates—Hot and cold rolled sheet and strip—(Alloy and Special Grades)

5526 on Reader Service Slip

PACKAGED TREATMENT for black eyes...

Are you getting a "black eye" in your town because waste from your plant is polluting streams...causing annoying odors? There's a simple "packaged" answer...an answer that may pay for itself.

CHAIN Belt Company has developed packaged industrial waste treatment equipment...Rex Float-Treat and Rex Verti-Flo®. These efficient units not only eliminate pollution... they can actually pay for themselves in the recovery of valuable materials heretofore "washed down the drain." Units are shipped complete and assembled. All that is needed is to connect the inlet piping to the plant waste lines. No expensive construction...no elaborate installation.

If you're interested in turning waste into profit or improving your public relations, write for informative literature and case histories on other plants that have invested in CHAIN Belt Industrial Waste Treatment units. CHAIN Belt Company, 4699 W. Greenfield Ave., Milwaukee 1, Wis.

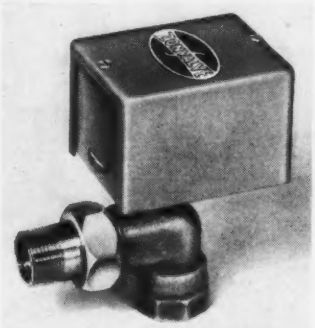
CHAIN BELT COMPANY

MILWAUKEE 1, WISCONSIN

5527 on Reader Service Slip

Valve permits low-cost individual-zone heat control

Thermostatically controlled valve regulates temperature of specific plant areas or zones. Valve is installed at any point in the line, usually replacing the regular radiator valve. Powered by electric motor utilizing low voltage wire, valve requires no specialized electrical connections. When in "open" position, automatically actuates burner or circulation system.



This zone heat controller can be installed on either steam or hot water systems

Zonvalve is available as complete package (valve-thermostat-transformer) from Heat-Timer Corp., Dept. 149, 657 Broadway, New York 12, New York.

For more information circle 5528 on Reader Service Slip.

Positive opening, closing couplers described

Large illustrations in file-size, 6-pg bulletin show action of quick coupling assemblies. Action is achieved without twisting, kinking, straining, or abuse to connecting hose or flexible pipeline. No tools required to open or close coupling.

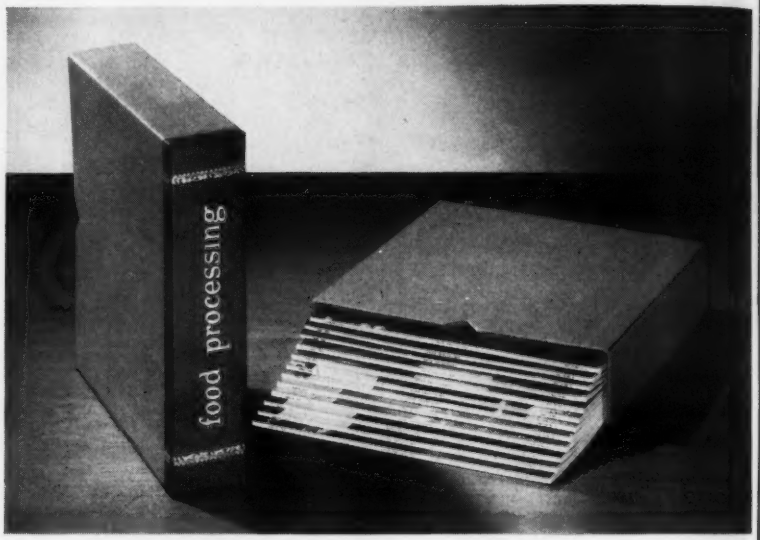
Bul F-10, "Kamlok Quick Coupling Assemblies", is available from OPW Corp., 2735 Colerain Ave., Cincinnati 25, Ohio.

For your copy simply circle 5529 on Reader Service Slip.

TO KEEP YOUR COPIES OF

food processing

ALWAYS AT HAND...



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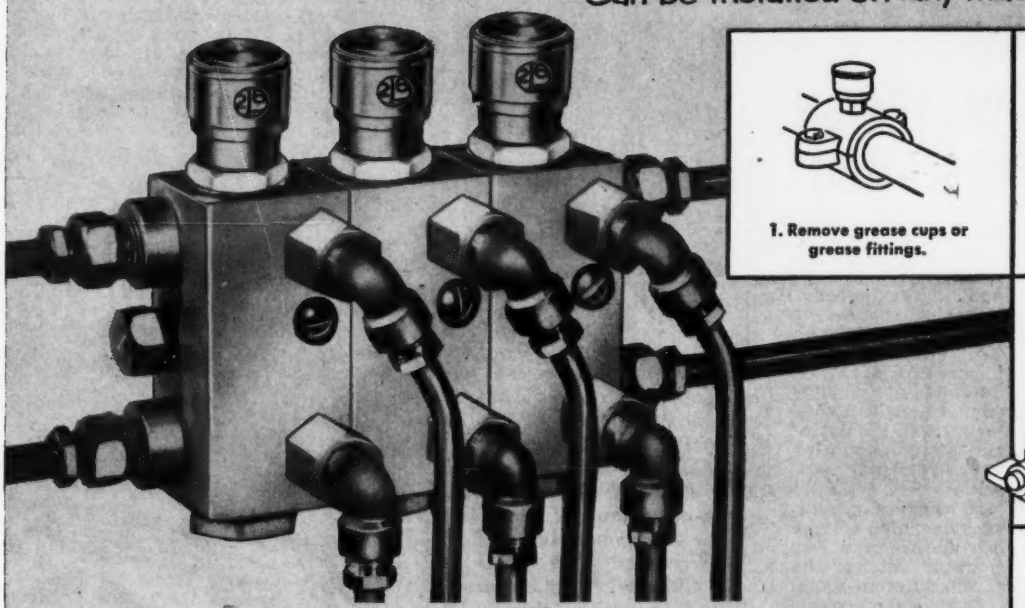
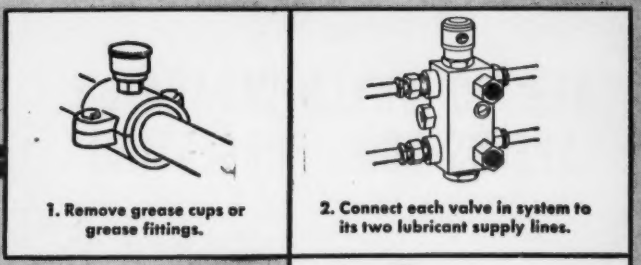
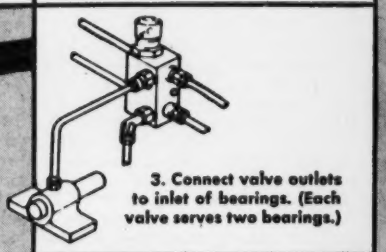
Can be installed on any machine in 4 easy steps!



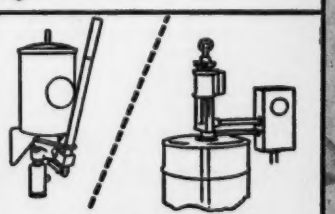


1. Remove grease cups or grease fittings.

2. Connect each valve in system to its two lubricant supply lines.



3. Connect valve outlets to inlet of bearings. (Each valve serves two bearings.)



4. Provide central pump for supplying lubricant to system.

Type II Accumatic Valve

Handles difficult multiple-bearing lubrication under all conditions. Fully sealed for clean lubrication of power shovels, cement kilns, conveyors—any outdoor or indoor installation. Operates whether completely immersed in fluid . . . covered by dirt or grit . . . or protected by anti-corrosive paint. For fluid oil or light grease. Four sizes, delivering from .050 to .500 cu. in. of lubricant.

Fully hydraulic—no springs to adjust or replace.

Now available with Lubrication Recording Cycle Counter—for a fully automatic record of bearing lubrication!

Tests show no appreciable variation in the amount of lubricant discharged after 73,312 cycles—equal to *122 years of twice-a-day service!*

ALEMITE ACCUMATIC ADVANTAGES!

- Prevents application of wrong lubricant.
- Seals completely against damaging dirt, grit and water.
- No parts are neglected—lubricates inaccessible and dangerous bearings at regular intervals.
- Eliminates product spoilage due to over-lubrication.
- Eliminates point-by-point lubrication methods—services all bearings in one operation.
- Delivers exact amount of lubricant to bearing.

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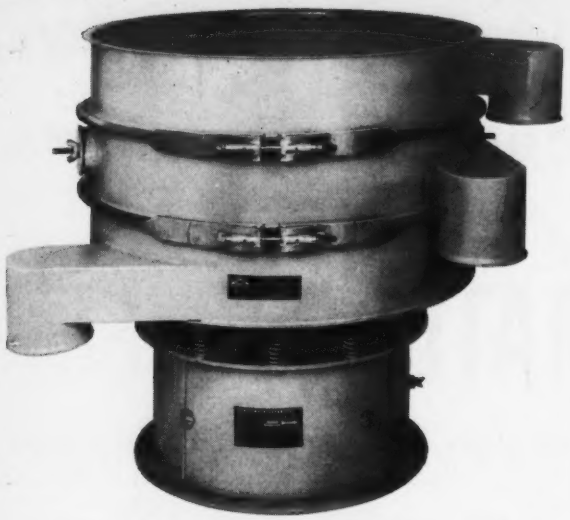

NEW 30" SWECO SEPARATOR SPEEDS FOOD PROCESSING

Spiral travel is the key to lower processing costs with SWECO's 30" Vibrating Screen Separator—the new intermediate size separator that combines the accuracy and big production capacity of SWECO's 18" and 48" models in one highly versatile unit. Screening area of the new model is 4.2 square feet, which is four times greater than that of the 18" unit and 40% the size of the 48" model.

Depending upon the product being processed, SWECO Separators usually will increase production from 50% to 200% per square foot of screening area. That's because spiral travel spreads material over the entire screening surface, which gives the SWECO Separator greater capacity per square foot of screening area than conventional screening devices.

This unique separator assures you cleanest separation, most accurate sizing. In achieving high-volume production through screens of finer meshes than ever before possible, the SWECO Separator extends the field of application to more than 200 different materials—hot or cold, heavy or light, wet or dry, coarse or fine. New intermediate size 30" SWECO Separators are available with one, two or three decks. All models may be equipped with dust covers.

Longer Screen Life, Minimum Upkeep

Unusually long screen cloth life of SWECO Separators virtually eliminates down-time and lost production. When replacement is necessary, screen cloth change is fast and easy. Design simplicity has reduced the number of wearing parts, which assures low upkeep. The SWECO Separator's motor consumes less power than other separators of equivalent capacity, and the entire load is spring-supported for free vibration, thereby reducing power requirements.

Screening Analysis and Recommendations Available

Your nearby SWECO District Engineer is available to help you with special screening problems. He will demonstrate in your plant how a SWECO Separator can screen your material economically and efficiently. There is no cost or obligation, of course.

Ask for catalog describing the new 30" SWECO Separator and its applications. Write for Bulletin S-120-4.

SWECO SEPARATORS

SOUTHWESTERN ENGINEERING COMPANY

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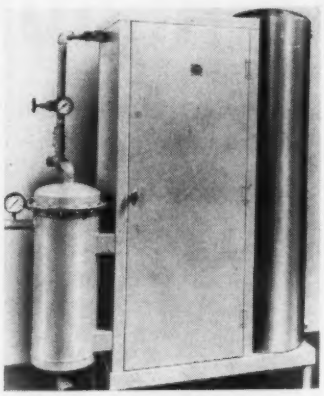
sanitation & maintenance

Wash water sterilizer also controls pH

Developed for controlling pH and sterilizing wash water in cottage cheese manufacture, automatic unit will produce up to 3000 gph of treated water.



Unit was developed for treating cottage cheese wash water

Water fed to system is first cooled and filtered. As it enters unit in pipeline, both chlorine solution and pH-controlling acid are proportioned into it. Water then goes to 60-gal stainless tank, where it is held for 70 seconds. It's then piped to process.

Chlorine solution used is 10% available chlorine concentration. Acid is lactic-phosphoric acid combination, designed to bring pH to 6. Chlorine concentration of treated water is 6 to 8 ppm. Finished water is free of psychrophilic organisms, will reportedly lengthen shelf life of cottage cheese washed with it.

NU-ABC water control system is product of Meyer-Blanke Co., 310 Russell Blvd., St. Louis, Mo.

For more information circle 5532 on Reader Service Slip.

Improved Sanitation . . .

. . . in handling bulk sugar at the new Los Angeles plant of Coca-Cola is detailed by operations management. Article begins on page 60.

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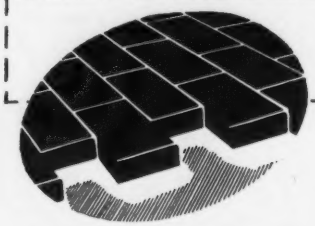
with no gamble involved... when your Brick & Tile Floors are



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100% satisfaction will also result if you insist on H.J.F. (hydroment joint filler) floors.

It's job proved floor insurance at an amazingly low, one-time cost.

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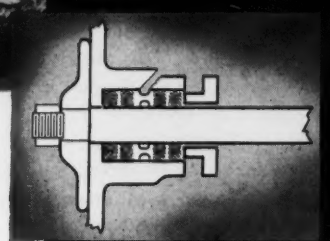
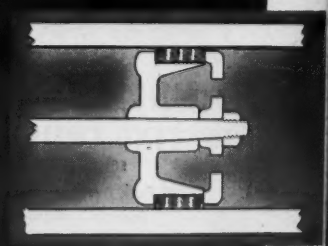
LATTICE-BRAID Asbestos Packing with Teflon impregnation, reduces friction, provides better seal with less gland pressure.

Wherever corrosion, contamination or torque is a problem on reciprocating applications or slow-turning valves CHEVRON† Packing made of Teflon is recommended.



Centrifugal pumps handling hot sulfuric acid and petroleum fractions leaked badly with ordinary packing. Also, new shaft sleeve required every few days. Teflon packing reduced leakage, and after several months service both packing and shaft were still in good condition.



Teflon packing rings on duplex pump handling 50% sodium hydroxide at 270°F. showed no sign of wear after 5 months. Formerly, packing lasted average of 30 days.

GARLOCK TEFLON*

Packings Reduce Process Shutdowns

Garlock LATTICE-BRAID† Packings of Teflon reduce maintenance, lower replacement costs, reduce wear on pistons and shafts, and increase productive capacity in countless pump applications where corrosive chemicals and severe operating conditions are encountered. The unique properties of Teflon (chemically inert, heat-resistant, low coefficient of friction, etc.) make it outstanding for use in chemical or petroleum process pump packings.

LATTICE-BRAID Packings of Teflon are another important part of "the Garlock 2,000" . . . two thousand different styles of packings, gaskets, and seals to meet all your needs. It's the only complete line. That's why you get *unbiased* recommendations from your Garlock representative. Call him, or write for LATTICE-BRAID Catalog AD 131.

THE GARLOCK PACKING COMPANY, Palmyra, N.Y.

For Prompt Service, contact one of our 30 sales offices and warehouses throughout the U.S. and Canada. For information on other fluorocarbon plastic products contact United States Gasket Company, Plastics Division of Garlock.

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sanitation & maintenance

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Disperses hesperidin deposit from citrus processing

An alkaline detergent has been compounded expressly to clean stainless steel equipment. It contains wetting-out and lime sequestering properties.

Detergent is effective in dispersing hespiridin deposits from citrus processing equipment. Applied by circulating solution through extractors, heat exchangers, pasteurizers, and evaporators. Can also be used as spray to clean surfaces of conveyors, floors, storage bins, and extractor troughs.

Composition No. 162 is product of Oakite Products Inc., 127A Rector St., New York 6, New York.

For more information circle 5536 on Reader Service Slip.

Small rectifier provides dc current for new line of disc clutches

Direct magnetic action eliminates yokes, shifters

Uses: For a wide range of machinery and power transmission applications.

Features: Direct magnetic action eliminates mechanical yokes and shifters or self-energizing actions that cause wear. Plug-in connections eliminate slip rings and brushes. Over-sized bearings are factory-sealed and require no

Silicon rectifier, only 4¾" by 3", mounts almost anywhere

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lubrication under normal conditions. Small silicon rectifiers simplify conversion of 115 v ac.

Description: Style "GS" and "GSW" clutches, for dry and wet applications respectively, are intended primarily for split shafts with keyways. Set screws make fast, easy work of positioning and installation, with stationary magnet body anchored against rotation by a simple strap assembly. Clutch can be driven from either end. Adjustment for lining wear is easily made with screws that also provide for mechanically engaging clutch in event of power failure. Clutches are built in sizes from 4" to 9" diameter.

Style "GS" and "GSW" clutches are built by Stearns Electric Corp., 120 N. Broadway, Milwaukee 2, Wis.

For your copy simply circle 5537 on Reader Service Slip.

No-spill lubrication

All-purpose bucket pump with gasket-sealed cover eliminates lub spillage, serves plant machinery and automotive units. See article on page 79.

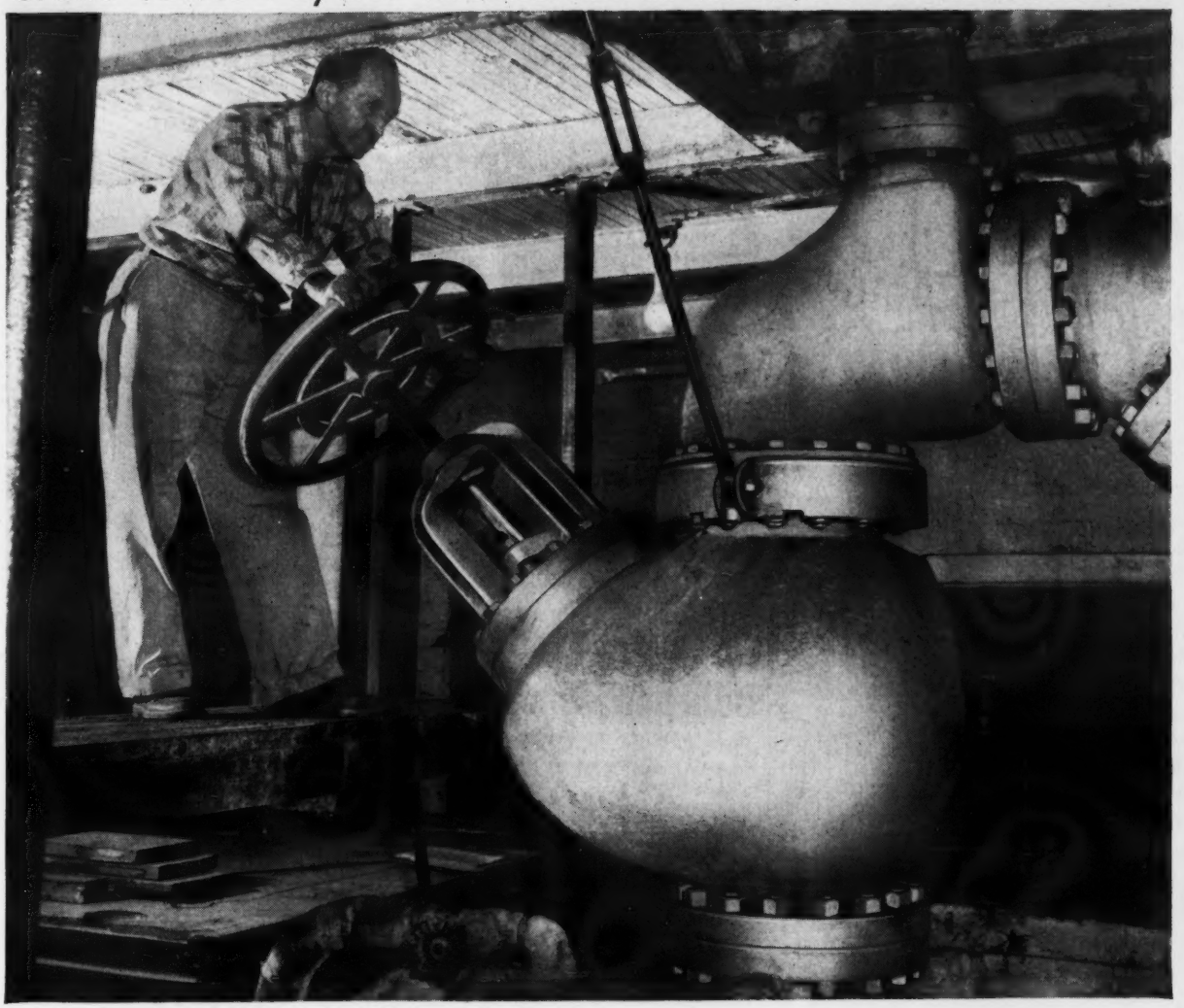
'Bondable' Teflon adheres to food equipment, using commercial adhesives

"Bondable" Teflon is available from another supplier. Sheets and tapes are surface-treated to make possible permanent bonding with regular commercial adhesives to aluminum, mild steel, wood, plastic, and glass. Chutes, rolls, and guide rails have been successfully covered with Teflon to improve food plant operations. Teflon's important characteristics are very low co-efficient of friction and anti-sticking properties.

Bondable Teflon is available in thicknesses of .005, .010, .015, .030, and .060", with a maximum 12" width, and in sheets 24 x 24" from Abbott & Biddle, 2417-x27 Federal St., Philadelphia 1, Pennsylvania.

For more information circle 5538 on Reader Service Slip.

Crane Valves Pay for Themselves in Trouble-Free Maintenance



Beginning another 50 years of cost-free valve service

This remarkable case history proves how the right valve can save money in repairs and maintenance—again and again.

This Crane 10-inch stop-check valve has been in use since 1906 at Seattle Cedar Lumber Mfg. Co., Seattle, Wash. Operating at 360° F. and 150 psi., the valve is closed every third or fourth night when one of 3 boilers is shut down. The valve is also closed every 3 weeks when the boiler is down for inspection and cleaning. About a year ago, this Crane No. 28E Ferrosteel valve was opened for inspection, cleaned up, and put back into service. Repair parts needed? None.

In short, all 50 years have done to this Crane valve is emphasize how rugged and dependable it has proved, and how important it is to use quality valves on every service. For complete information on any valve problem, contact your Crane Representative.

YOU'LL FIND GOOD tips on valves in "Valve Performance Facts"—32 case histories throughout industry. Ask your Crane Man for a copy or write to address below.

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LOW-COST HUMIDITY CONTROL
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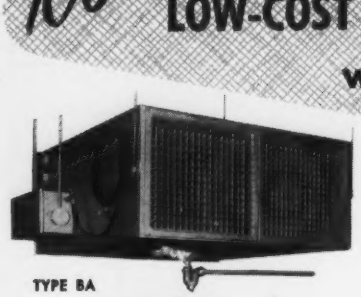
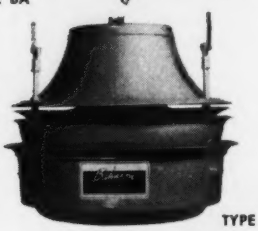


TYPE BA



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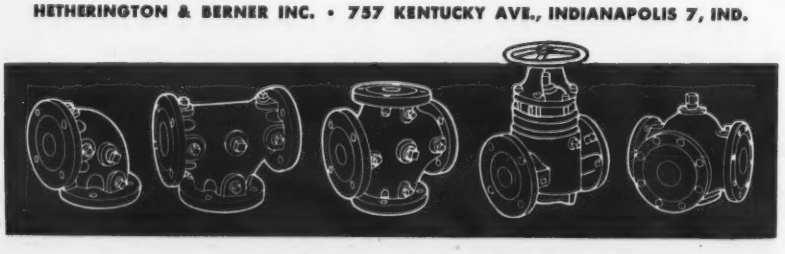

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Short-cut method resurfaces aisles at 31% saving

Special aggregates lend strength at points of greatest wear

A short cut method of resurfacing aisles in plant areas with heavy-duty flooring effects savings of as much as 40c a sq ft over conventional method. It also results in a more durable job than another rather common short cut method. It's called "edge scarification". Here's how it works: A triangular trough, ¾" deep at its deepest point, and extending 12" from the edge of the aisle into the center, is jackhammered out of the old floor at each side of the area to be resurfaced. (See Figure 1.) From a cross-sectional view, the trough has a wedge shape. After a non-reversing

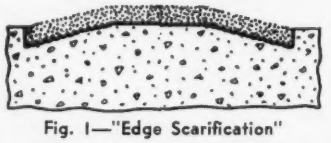

Fig. 1—"Edge Scarification"

Fig. 2—"Inlaid Surface"

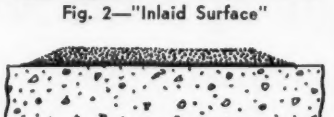

Fig. 3—"Feather Edge"

bonding agent has been applied, a heavy-duty special emery aggregate concrete flooring (¾" deep) is laid down on top of the old surface and into the two troughs. An incline is thus formed between the top of the new surface and the original flooring at either end of the aisle.

Advantages of "edge scarification" over the conventional or "inlaid surface" method (Figure 2) lie in elimination of the dirt and dust created when the old flooring is scari-

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★ **Tops for Tough Cleaning Jobs**

Klenzade "CBS" Cleaner is the finest industrial detergent available. Superb balance and high wetting agent content provide excellent soil penetration, fat emulsification, and free rinsing.

★ **High Temperature Cleaning**

Klenzade Flash-Kleen is ideal for steam cleaning jobs. Strips "baked-on" soil residues quickly with the Klenzade Steam Cleaner.

★ **Controlling Mineral Deposits**

Klenzade Flash-Klenz removes and prevents lime film on canals, troughs, fillers, chutes, etc. Use the Klenzade Alternate System of Cleaning employing alkaline and organic acid detergents.

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fied with jackhammers, grout applied and a heavy-duty concrete flooring laid down. Expensive labor involved in the ripping up operation is eliminated. "Inlaid-surface" jobs cost as much as $1.35 for sq ft against as little as 93c for "edge scarification".

"Edge scarification" also offers advantages over another short cut method, used to some extent in recent years to produce a "raised flooring with 'feather-edging'" (Figure 3). In this procedure the floor is not scarified. Instead a non-reversing neoprene-bonding agent is used to hold the new surface to the old one. A ¾" heavy-duty emery aggregate concrete flooring is used. Since square edges with a vertical drop of ¾" would make it difficult for fork-lift trucks and other vehicles to get on and off a raised aisle, the heavy-duty concrete is finished at each side to form a small incline between the raised surface and the original flooring at either side of the aisle. The aisle looks something like the one made by "edge scarification" but lacks the ¾" over-all depth at the inclines as well as in the middle. Thus, with this more shallow construction, edges crumble and break off.

The special emery aggregate referred to, which can be used in all three of the methods described, is one of the hardest substances known. In combination with the feather-edge method, it provides resurfacing of great durability.

Emeri-Bond bonding agent and Cortland emery aggregate concrete flooring are made by Walter Maguire Co., Inc., 60 E. 42nd St., New York 17, N.Y.

For more information circle 5543 on Reader Service Slip.

READER SERVICE

For more information on trucks, trailers, and other developments described in these articles . . . use the convenient, self-mailing Reader Service Slip opposite the inside back cover.

STEELCOTE MAINTENANCE NEWS

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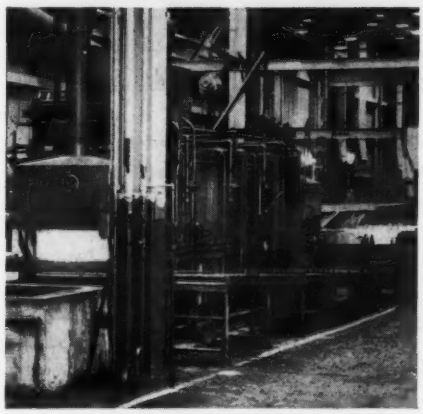
NEW PAINT FOR MACHINERY, EQUIPMENT AND STRUCTURAL STEEL HOLDS 10 PERFORMANCE RECORDS



Steelcote EPO-LUX 100, the latest product of paint research, is the most chemically resistant type air dry organic finish known. Its resistance to acids, alkalis, salt and solvents exceeds any other type paint. Other new records achieved by EPO-LUX 100 are: Superior adhesion, impact and abrasion resistance; unexcelled gloss; 75% of hardness of glass without brittleness. Brush or spray application. For recommendations on use of EPO-LUX 100 in your plant, write us describing your problem.

Steelcote FLOOR-NU Patches and Resurfaces Where Chemicals and Abrasion Destroy Concrete, Wood, Metal Floors, Walls and Tile Grout

Where heavy trucking, abrasion, acids, salts, solvents or alkalis ruin structural surfaces, new patent-applied-for FLOOR-NU makes a tight bond repair or resurfacer that defies these abuses. It will not shrink. Can be feather edged. Comes ready to trowel. Five times stronger than concrete. Can be trucked overnight. Not an asphalt product.

Thickness of ⅛" Sufficient for Heavy Trucking. No Need to Move Machinery.

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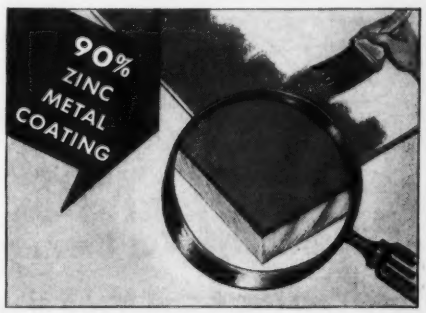
IN CANADA: STEELCOTE MFG. CO., LTD., RODNEY, ONTARIO

STEELCOTE EPO-LUX ZINC RICH Z-D PRIMER GIVES CATHODIC ACTION OF GALVANIZING

Costs Approximately ⅔ Less Than Hot Sprayed Zinc

The unequalled rust inhibitive qualities of zinc have been established by the universal usage of galvanizing. Now this same type protection can be given steel in on site application without vulnerability of the zinc to attacks of acids and alkalis. Now for the first time you can apply by brush, spray, or roller a coating of over 90% pure zinc metal. It has such tremendous adhesion that overcoats of EPO-LUX 100, resisting acids and alkalis can be added, assuring the longest-lasting and most effective corrosion prevention possible.



FOR MOST SATISFACTORY PAINTING OF WET WALLS

America's Quality Leader is STEELCOTE DAMP-TEX

Transforms wet dingy surfaces into cheerful porcelain-like beauty. DAMP-TEX permits surface moisture to escape. Then it dries into a hard, porcelain-like enamel film that withstands repeated washings for years. Fungus and bacteria killer can be added to DAMP-TEX before application to assure maximum sanitation.

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spice RESEARCH NEWS

Four-Year Study Pinpoints Antioxidant Values of Spices

Research conducted at the Hormel Institute (University of Minnesota) has established the antioxidant activity of 32 spices in several types of fat-containing foods.

A total of 78 samples of the spices were used in tests run on lard, baked pie crust, a simple oil-in-water emulsion, mayonnaise, French dressing and ground pork which was stored at both 23° and 5°F.

Highlights: Sage and rosemary were found to be outstanding antioxidants in lard, each extending stability several times. Soluble fractions of the spices were found in the main to have less antioxidant power in lard than the ground spices. Oregano, rosemary, thyme and sage lengthened storage life of pie crust appreciably. Cloves, turmeric, allspice, mace and rosemary proved excellent antioxidants in the oil-in-water emulsion, as were allspice, cloves, rosemary and sage in ground pork. In mayonnaise, oregano had the highest antioxidant index, followed by cloves, rosemary, sage and thyme.

FURTHER DETAILS . . . on this Antioxidant Research Project are available from the Information Bureau, American Spice Trade Association, 350 Fifth Avenue, New York 1, New York.

American Spice Trade Association

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"KERODEX" protected hands wash clean without scrubbing.

"KERODEX" spreads on like a cream but acts like an invisible glove to shield the skin from the vast majority of industrial irritants such as acids, alkalis, solvents, paints, cutting oils, and resins. "KERODEX" does not smear. It does not affect materials handled, nor is it affected by them. Two types of "KERODEX" are available for "wet" and "dry" work. Write for full information on "KERODEX"® barrier creams to Ayerst Laboratories, 22 East 40th Street, New York 16, N. Y. 5759

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Fancy Pack

French Style Cut Beans from No. 4 and No. 5 sieve size round pod beans with the URSCHEL Model "W"

Now, your round as well as flat podded beans can be cut with the Urschel Model "W" into the finest, most appetizing French Style Strips for a premium pack that brings a premium price. The new unit also gives you the advantage of a more standardized operation, since all your bean packs can now be made from round podded beans.

For complete information, promptly, write today to:

PRECISION HIGH-SPEED FOOD CUTTING EQUIPMENT

URSCHEL LABORATORIES INC.
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Designers and manufacturers of precision, high speed cutting equipment for food products

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NEW LITERATURE

Reviews of books and industrial bulletins describing equipment, supplies, services

The H. J. Heinz approach to management planning

Case study by Controllership Foundation details management planning and control, objectives, organization, and methods of the H. J. Heinz Co. Paperbound, 113-page book tells how various budgets are originated, approved, and integrated into an annual profit plan, which provides a systematic, recurring basis for creative management at every level.

Also included are a formal statement of policies and objectives of the company, an index of charts used in presenting 1957 budget to the board, and lists of topics discussed at typical staff meetings of various divisions.

"Management Planning and Control: the H. J. Heinz Approach" can be obtained by remitting $3 direct to Controllership Foundation, Inc., Two Park Ave., New York 16, N. Y.

Chromatography methods covered comprehensively

Second edition of chromatography text incorporates many significant advances in this rapidly expanding research field. Book covers entire range of techniques, equipment, basic principles, applications, and results for both organic and inorganic chromatography, includes partition, adsorption, and ion-exchange methods.

Well-illustrated, 700 page text contains some 300 figures and tables, includes nearly 4000 literature references. Complete collection of RF values is also included in the new volume.

"Chromatography", by Lederer & Lederer, can be obtained by remitting $12.75 direct to D. Van Nostrand Co., Inc., 120 Alexander St., Princeton, N. J.

Flumes both wash, move bulk-stored potatoes, states USDA report

Significant savings in operational costs are possible by moving bulk-stored potatoes via water-filled flumes or sluices. One plant that replaced conveyors and manual forking with flumes needed only one worker instead of six. The water not only loosens soil from potatoes but also removes soil from floor of storage areas.

Single copies of USDA Marketing Research Report No. 177, "Flume Systems for Handling Bulk-stored Potatoes", are available free from Inquiries and Distribution Service, Office of Information, USDA, Washington 25, D.C.

Horticulture textbook amplified in 2nd edition

Many changes and additions in original 1951 edition of horticulture text have been made in new second edition. Book is intended for general horticulture courses, should also prove valuable as reference work in providing amplification of fundamentals of plant growth. Book is divided into three parts: fundamental processes, application of fundamentals to practices, and a discussion of principal horticultural crops.

"Fundamentals of Horticulture," 456 pages, by Edmond, Musser, & Andrews, can be obtained by remiting $6.75 direct to McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y.

READER SERVICE

For your copy of technical literature described in this section . . . use the convenient self-mailing Reader Service Slip located opposite the inside back cover.

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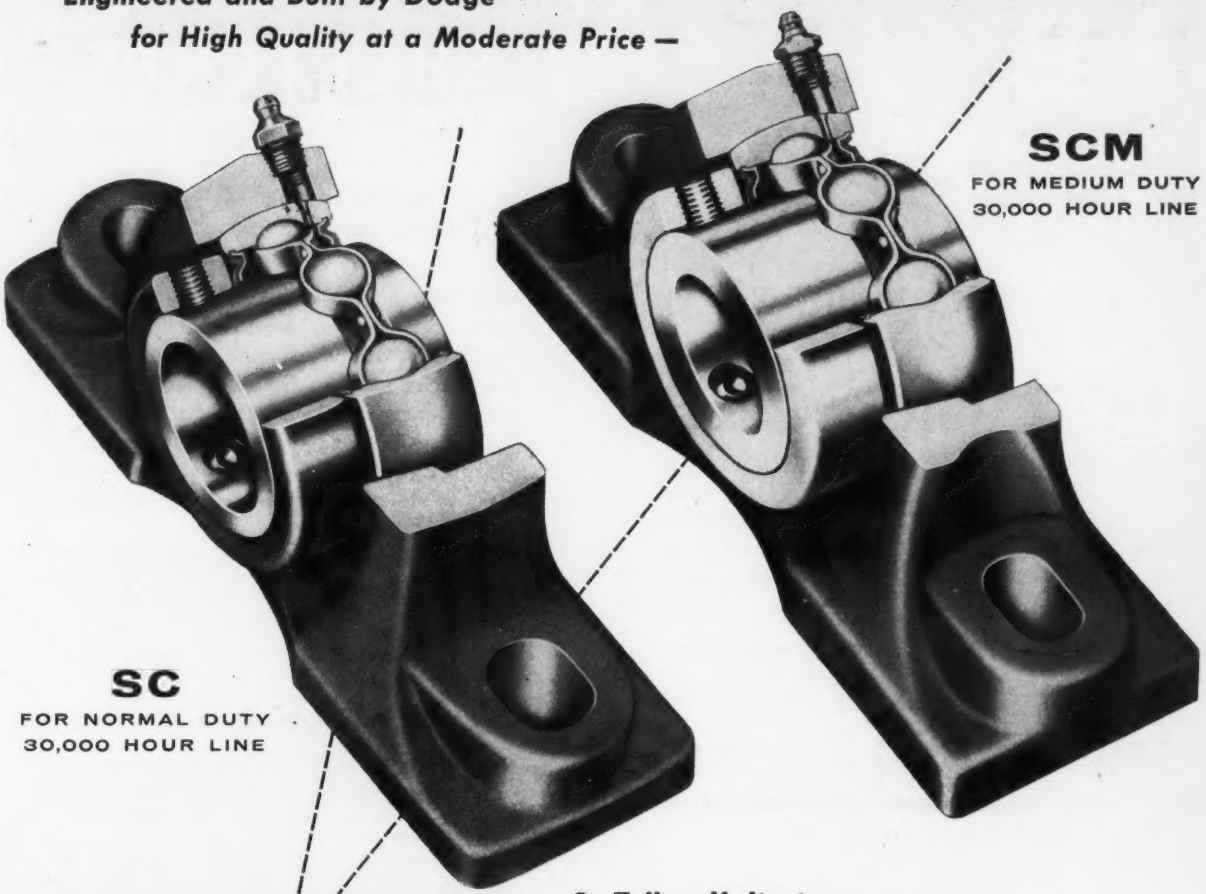

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Call the Transmissioneer, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone directory, or write us.

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NOW IT CAN BE TOLD
OVER
90 Million Cans

have been carried by our "Nylite" conveyor chain without appreciable wear. This chain has run at high speeds, without lubrication and using less power. Other chains running alongside have since been discarded. There are still many years of life left in it.

Nylite chains do not scratch cans causing rust.

If you think of your product and your pocketbook . . . think of NYLITE by

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The SHEFTENE family of milk proteins is versatile, functional, and economical.

SHEFTENE Sodium Caseinate is profitably being used by meat processors, bakers, ice cream manufacturers, dietetic and low-calorie food processors. As *binding, emulsifying* or *stabilizing agents,* SHEFTENE Sodium Caseinate has improved their mixing operations. Improved their products too! Perhaps this member of the SHEFTENE family can help you.

There are many SHEFTENE milk proteins. Perhaps one of these . . . SHEFTENE 60 milk protein concentrate, SHEFTENE High Nitrogen Casein, SHEFTENE Whipping Compound . . . may help you.

Send for technical information and sample today.

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PNEUMATIC

makes light work of

FOOD PACKAGING

Foods in tins, glass and cartons. Foods of many types, in many sizes of containers. Every day, on PNEUMATIC equipment, foods in profusion are put-up in packages, bottles, cans or jars with great speed, neatness and in tremendous volume to meet the huge daily food consumption.

A representative few of these foods, here shown, include those which are the best known and most widely bought by American consumers. Pneumatic's experience in the field is vast and varied—its intimate knowledge of the many peculiarities of food handling have led to the design of highly adaptable machines that operate at a "lower cost per container."

PNEUMATIC SCALE CORP., LTD., 67 Newport Avenue, Quincy 71, Mass. *Also: New York; Chicago; San Francisco; Los Angeles; Seattle; Leeds, England.*

Packaging and Bottling Equipment

5551 on Reader Service Slip

new literature

Offer higher ratio—24:1 for shaft mounted drives

Selection tables have been issued for shaft mounted drives which are now available in new higher ratio — 24:1 (or 20:1 in 2 smaller sizes). Outside dimensions and torque rating of these drives remain the same as the older models.

Practical advantages of the higher ratio units are: (1) use of smaller sheaves to obtain a given output speed, and (2) saving in motor cost when, because of lower output speed, a 1750 rpm motor can be used instead of a more expensive slower-speed motor.

Drives available for horizontal and vertical application, in ½ to 30 hp ranges, with output speeds as low as 5 rpm.

Selection tables, 4-pg addition to Bul 7101, can be obtained from The Falk Corp., Dept. 255, 3001 W. Canal St., Milwaukee 1, Wis.

For your copy simply circle 5552 on Reader Service Slip.

Truck maneuvers easily in box cars, trailers

A 4-page bulletin illustrated with action photos and drawings gives full information on a 2000 lb truck designed for handling loads in confined areas at maximum speeds. Top travel is 6½ mph, lift speed 72 fpm. Drive unit employs combination of work and spur gear reduction assembly powered by a series-wound motor especially built for industrial truck service. An unusual steering axle is the key to a short turning radius — 360° steering. It has a special anti-backlash device. The dual wheels are mounted on sealed taper roller bearings. Two models: 83" high model weighs 5300 lb; 68" high model, 5100 lb with power. Over-all length, including forks, is 102".

Folder on Type F-38T2 electric Cargo Scout trucks is issued by Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, Ohio.

For your copy simply circle 5553 on Reader Service Slip.

Describes 18 nematodes, suggests controls

Large photos accompany description of 18 different nematodes in 50-page bulletin. Until recently little concern was shown regarding these insects and their effect on agriculture. Control methods are still not too definite; authors have outlined methods based on crop and soil conditions.

Single copies of bul, "Nematodes — Their Kinds and Characteristics", are available from Plant Commissioner, State Plant Board, Gainesville, Fla.

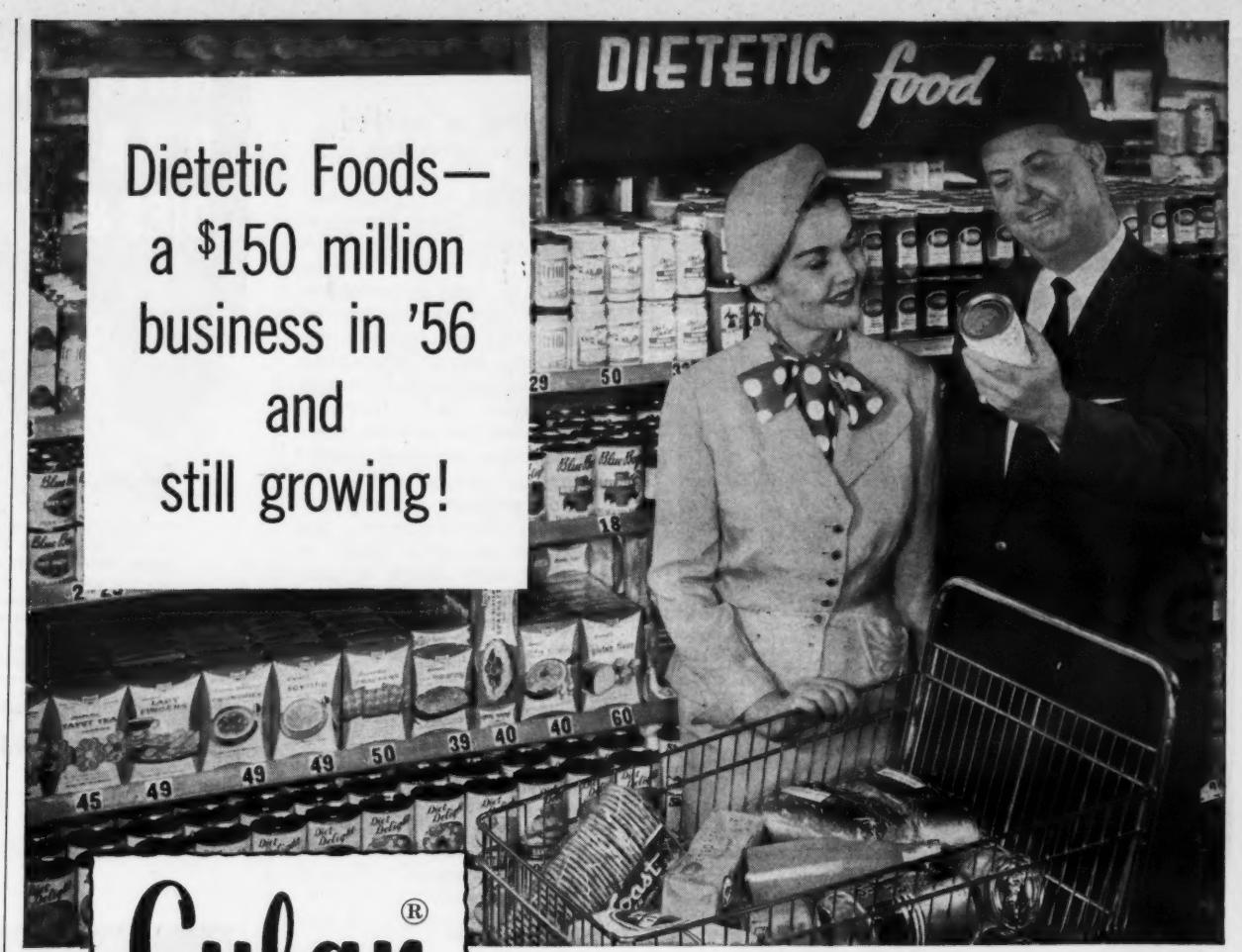
Microfiltration from laboratory to large-scale industry

Capabilities of filter materials from laboratory to large-scale industrial use are described in a 16-page brochure. Specifications, charts, tables, and illustrations show basic characteristics, analytical techniques, laboratory filters and apparatus, field monitors and apparatus, and process applications.

"Millipore Filters 1957 Supplement" is available from Millipore Filter Corp., 36 Pleasant St., Watertown 72, Massachusetts.

For your copy simply circle 5554 on Reader Service Slip.

"How's it coming? . . ."



Dietetic Foods— a $150 million business in '56 and still growing!

Cylan®
CALCIUM CYCLAMATE

Du Pont's non-caloric sweetener

can help you get a bigger share of this expanding market

Diet-conscious consumers spend millions ($150 million in 1956) for dietetic foods and beverages.

This couple are new customers for dietetic products. They're among the thousands of overweight adults who have discovered the new, modern low-calorie foods that are so important to their good health. And they've found that these products, sweetened with Du Pont "Cylan," have the elegant, sweet taste they like so much.

There's a large potential market for your dietetic foods and beverages because one of every four adult Americans is overweight. Sweeten your food and beverage products with Du Pont "Cylan". It is calorie-free, stable, easy-to-use and economical.

Let us help you get your share of this ever-expanding market. We'll gladly furnish you a free experimental sample and descriptive information. Just fill in the coupon below.

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Please send me: ☐ An inspection sample ☐ A working sample
☐ Information for making dietetic _____
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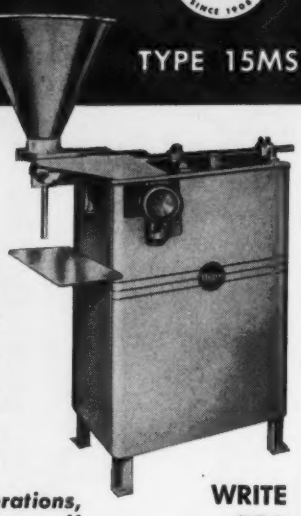
FILLING MACHINE TYPE 15MS

Hope

... You can buy several for less than the cost of one big machine



Another first for Hope . . . This new, small, streamlined floor model accurately handles liquid, viscous and semi-solid products quickly and at the lowest possible cost! Excellent for pilot runs, small operations, laboratory testing, small batches and short production runs of a color or product.

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write for new catalogs

New catalogs show the features and performance data of the Ingersoll-Rand Type 30 Compressors and Vacuum Pumps—from ½ to 20 hp—send for your copies today and find out more about

- Balanced V Construction
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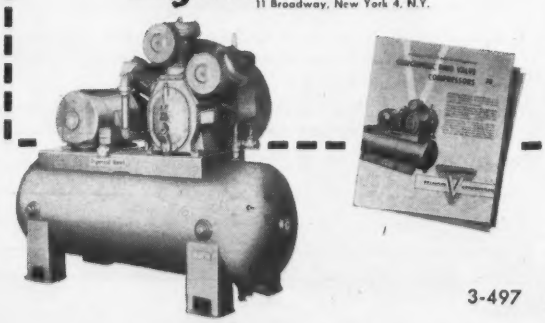


3-497

5557 on Reader Service Slip

new literature

Proceedings of meeting on food preservation

Proceedings of Symposium on Future of Food Preservation is now available. Book contains 118 pages covering methods of food preservation. Included are discussions of refrigeration and freezing, dehydration, dehydrofreezing, heat preservation, high-energy preservation, and chemical preservation. In addition, there are 53 pages on other related factors.

Book provides a picture of technical developments, and helps to interpret them, in terms of their effects on producer, distributor, and consumer. There is also a summary of the views of speakers, presenting highlights of the symposium.

"The Future of Food Preservation", 192 pages, can be obtained by remitting $6.00 to Midwest Research Institute, 425 Volker Blvd., Kansas City 10, Missouri.

Bending pipe and tubing

Simplified drawings in 6-pg folder show various methods of bending steel pipe and tubing. Suggestions are also supplied to overcome many of the problems which occur in bending.

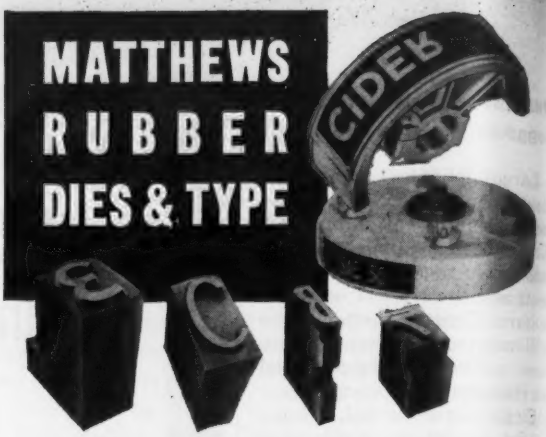
Bul TDC-187, "B&W Bending Tubing and Pipe", is available from Tubular Products Div., The Babcock & Wilcox Co., Beaver Falls, Pa.

For your copy simply circle 5558 on Reader Service Slip.

Selecting glass and plastic containers and closures

A listing of plastic and glass containers and closures are shown in this 103-page catalogue. Available as a reference for those interested in selection of such containers for packaging, all items are listed according to size with drawings and specifications. In addition, a cross reference re-

MATTHEWS RUBBER DIES & TYPE



For any application

Coding right on your moving lines with Matthews' Rubber Roller Dies and Interchangeable Type is the fastest, surest, most efficient and economical method you can use. Type shapes and sizes for any existing application, or methods can quickly be developed for your requirements. Inks available for every need.

Write for samples, stating on what type of equipment coding is to be done and your particular marking problem.

JAS. H. MATTHEWS & CO.

3950 Forbes St. Pittsburgh 13, Pa.

OFFICES IN PRINCIPAL CITIES

WRITE, CALL, OR TWX PG-424

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EDMONT CASE NO. 626: Handling boxed fruit in a Michigan packing plant, canvas gloves lasted 1-½ days. Edmont recommended a new vinyl-impregnated glove with non-slip grip (No. 151 Werx). It wore 9 days, each pair handling an average of 675 tons of boxed fruit, for a 69% saving.

Werx glove outwore canvas 6 to 1

No. 151 Werx

In case above, the Edmont-recommended glove outwore canvas and reduced glove costs 69% because it fit the job. Its vinyl-impregnated fabric allows bare hand dexterity, provides a non-slip grip and even outwears expensive goatskin on many jobs. It keeps out dirt but lets the hands breathe, and is completely washable.

Free Test Offer To Listed Firms: We make more than 50 types of gloves. Describe your operation, materials handled and temperature condition. We will send samples of the correct glove for comparison testing on-the-job.

Edmont JOB-FITTED GLOVES

Edmont Manufacturing Company
1212 Walnut Street, Coshocton, Ohio
In Canada write MSA, Toronto

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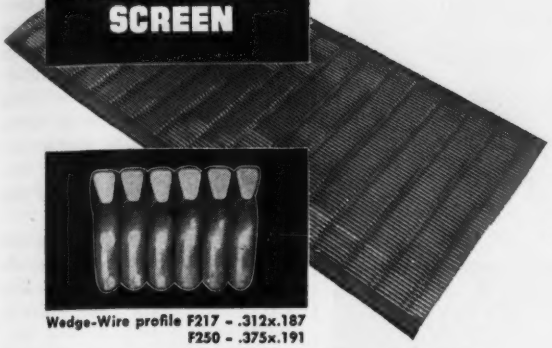
new!
"LARGE SIZE WIRE"
Kleenslot
PREPARATION SCREEN



Wedge-Wire profile F217 - .312x.187
F250 - .375x.191

. . . for dewatering, screening, washing, extracting, filtering or sizing. Designed for extended life in abrasive applications. Easily maintains openings from ½ inch to as close as 1 m.m. Exclusive *Independent Flexing Action* provides greater screening capacities. Adaptable to vibrator applications. Available in many metals. Furnished in guard bars and special shapes or designs. Write for prices and details—send your specifications.

WEDGE-WIRE CORPORATION
Wellington, Ohio

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fers back to display section, showing the items in perspective. There are also many photographs of glass and plastic containers and closures as well as a glossary of trade terms and simple conversion factors.

Catalogue is available from W. Braun Co., 300 N. Canal St., Chicago 6, Ill.

For your copy simply circle 5562 on Reader Service Slip.

Describes testing units for butterfat and/or total solids

Five models of tester, for determining either or both butterfat and total solids in fresh or condensed milk, ice cream, cheeses, and other dairy products, are described and illustrated in 4-pg bulletin. Last page has charts showing daily and yearly savings possible with this tester.

Bul 353-16 is published by Mojonnier Bros. Co., 4601 W. Ohio St., Chicago 44, Ill.

For your copy simply circle 5563 on Reader Service Slip.

Filter press pumps

Engineering drawings and graphs accompany discussion of pumps for filter presses in file-size, 8-pg technical data folder. Characteristics of each type of pump are presented, together with concise historical development of pumps in general.

"Pumps for Your Filter Presses", Tech. Data Sheet T4, is issued by T. Shriver & Co., Inc., 846 Hamilton St., Harrison, N.J.

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BETTER HANDLING . . .

of bulk materials, unit loads, or of products in process keynote newly developed equipment described in Material Handling section, featured this month. It starts on page 58.

Lumenite
AUTOMATIC CONTROLS
ELECTRONIC LIQUID LEVEL
INDUSTRIAL TIMERS
TIME SWITCHES
MAGNETIC SWITCHES

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FL—Liquid Level
FM—Milk Level
FN—Nonconductive Liquid
ITC—Ice Thickness
BH—Boiler Level

Ask for Bulletin

LT—Time Switches
PC—Program Clocks
CR—Cycle Repeaters
R—Time Delay Relay
RMC—Automatic Reset

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407 S. Dearborn Street Chicago 5, Ill.

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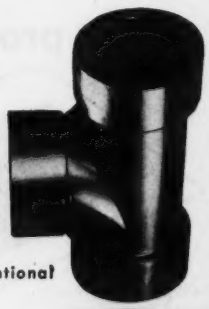
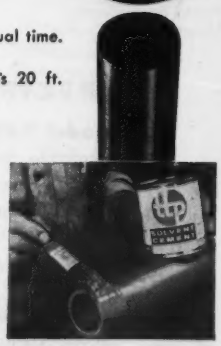
NEW
PVC DRAINAGE FITTINGS
for corrosive wastes



Tube Turns Plastics announces a new line of socket type drainage fittings for solvent cementing, which make possible these advantages of PVC drainage systems:

- Pipe and fittings cost less than conventional materials.
- System weighs about 1/10 as much.
- Labor costs less—can make joint in ¼ usual time.
- Fewer tools and supplies needed.
- Fewer joints required — pipe as long as 20 ft.
- No losses due to breakage.
- Unimpeded flow conditions.
- Unaffected by ground conditions or galvanic action.
- Joints stay tight permanently.



Write for Bulletin TTP-119 Tube Turns Plastics, Inc., Dept. TP-10 2929 Magazine St., Louisville 11, Kentucky.

TUBE TURNS PLASTICS, INC.
Louisville 11, Kentucky
Call your TUBE TURNS PLASTICS' *Distributor*

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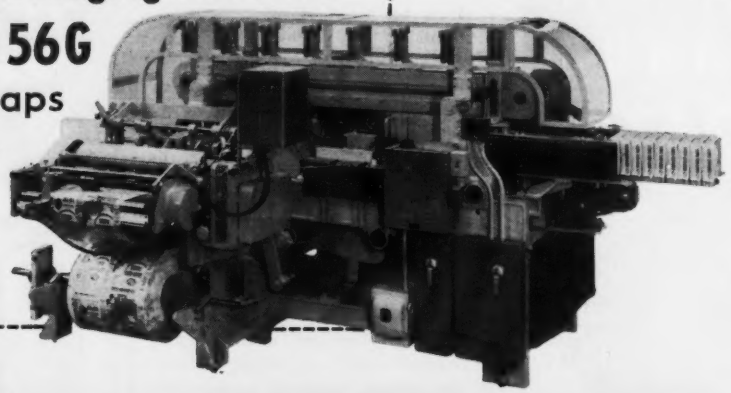
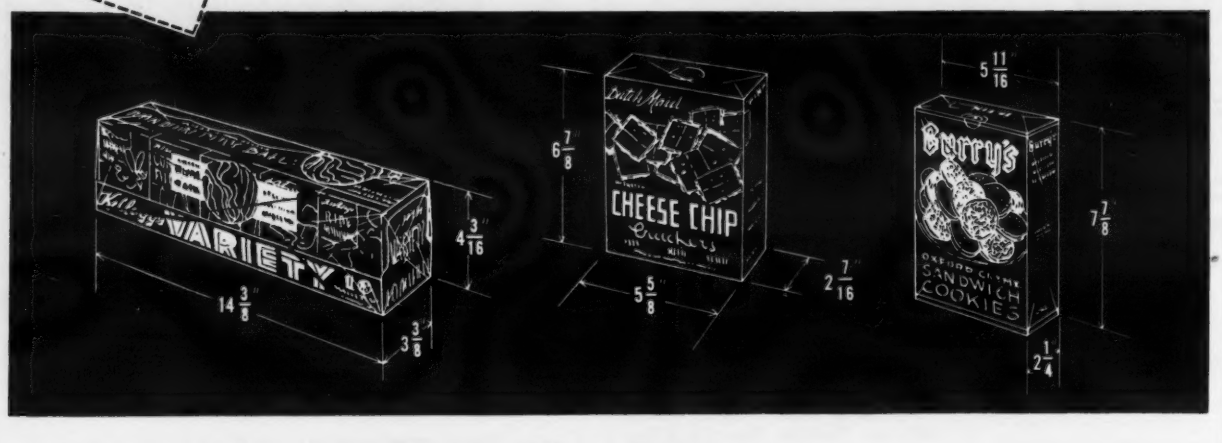
This Battle Creek Packaging Machine Model 56G

has handled overwraps within these ranges at speeds up to 80 packages per minute





to produce packages like these

Kellogg Variety Pack Broad Panel Display Maintains Eye Contact

Dutch Maid Cheese Chip Package Is Economically Wrapped by the "Continuous Flow" Process

"Continuous Flow" Packaging Gives High Sales Appeal to Burry's Oxford Creme Sandwich Cookies

SPECIFICATIONS

Model 56G—Battle Creek's Model 56G is a dependable packaging machine incorporating all the special adaptations and developments of the high speed *"Continuous Flow"* principle. A key feature of this machine is its ability to put the seam on the narrow edge of the package thus permitting full display of the broad panels for maximum merchandising effectiveness. The standard machine includes the motor, variable drive, electric clutch with brake and one shot lubrication while other merchandising and production equipment such as refrigeration, electric eye, code dater and electronic heat controls are available on special order. The size range covered encompasses a length from 5" to 15" long, a width of 2½" to 8¼" and a depth of 1" to 5" with an average size changeover time of about 20 minutes.

Call on Battle Creek Packaging Machines for quick, complete service on your packaging problems.

"Continuous Flow" Packaging

BATTLE CREEK packaging machines, inc.

108 TWELFTH STREET, BATTLE CREEK, MICHIGAN

See us at The Packaging and Materials Exposition, March 25-28, 1958, Atlantic City.

5567 on Reader Service Slip

new literature

Service bottles while in use

Application of protective coating to bottles, telling what the coatings are and what they do are described in 8-page booklet. Included are coatings applied in the glass manufacturing plant and on the filling line. The structure of glass, reasons for coating and an explanation of most of the various types of coatings are also covered.

"A Protective Coating for Returnable Bottles" is available from Thatcher Glass Mfg. Co., Inc., Box 265, Elmira, N. Y.

For your copy simply circle 5568 on Reader Service Slip.

Easy to move submersible pump—weighs only 35 lb

Brochure with large illustrations has description of lightweight pump which can be completely submerged (including motor). Unit has capacities up to 55 gpm. Pump parts are of brass, bronze, or plastic with stainless motor shaft.

"Model SK Submersible Pump", 4-pg, file folder size, is available from Speed King Mfg. Co., Div. of Jaeger Machine Co., 920 Dublin Ave., Columbus 16, Ohio.

For your copy simply circle 5569 on Reader Service Slip.

"GENTLEMEN, I'VE CALLED THIS MEETING TO DISCUSS NEW PROCEDURES."

Bulletin describes pneumatic controllers, explains theory

Pneumatic control instruments are described in a 44-page, two-color bulletin. Ten pages of bulletin are devoted to general automatic control theory. Illustrations help describe basic concepts of narrow band, proportional, reset, derivative, and reset plus derivative control actions. Selective control, cascade control, and ratio control are also covered.

In addition to describing features of pneumatic recordings and indicating controllers, bulletin also includes information on sensing elements used with instruments for measuring and controlling such variables as temperature, pressure, humidity, flow, density and specific gravity, liquid level, and pH.

"Free-vane Pneumatic Controllers", bulletin A130, may be obtained from The Bristol Co., 143 Bristol Rd., Waterbury 20, Conn.

For your copy simply circle 5570 on Reader Service Slip.

How to package with plastics

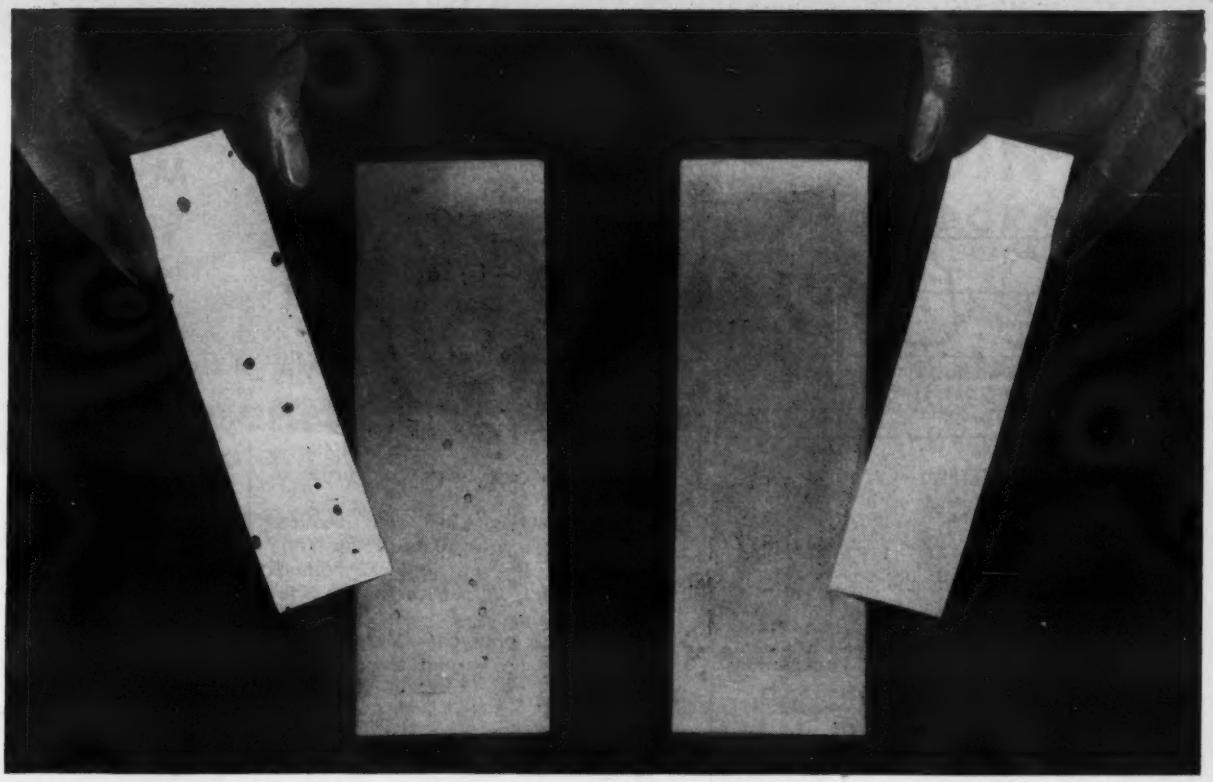
Discussions of the latest developments and new methods in plastic packaging are included in this regularly published booklet. Case histories are also shown.

Each issue presents a variety of information on the use of plastics in the packaging field.

"Packaging with Plastics" is available from Bakelite Co., 260 Madison Ave., New York 16, N. Y.

For your copy simply circle 5571 on Reader Service Slip.

Other reviews of catalogs, bulletins, books, data sheets, etc. are found throughout the magazine. Many advertisements also mention availability of this type of literature.



This unretouched photo shows a test your Diversey D-Man can perform, in your office, to test the corrosiveness of your bactericide on stainless steel. Identical pieces of filter paper are dipped in saturated bactericidal solutions to be tested. Paper on the right is soaked in Diversol CX. Paper on left in an ordinary bactericide. They are then placed on stainless steel panels. As filter paper dries, rust spots appear at left, corresponding with places where bactericide attacked stainless steel. *As you see, Diversol CX panel is still bright and clear.*

the wrong bactericide will corrode your stainless steel

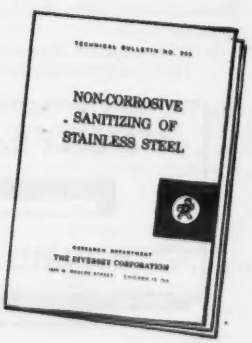
The same chlorine that kills bacteria will also corrode your stainless steel equipment . . . *unless the chlorine is buffered to prevent corrosion.* These stainless steel panels are proof. Note closely the panel exposed to a concentrated solution of a typical bactericide. It is corroded, while the panel at right is free from pits and rust.

If your cleanup crews are using the wrong bactericide *you can expect corrosion!*

However, if your cleanup crews are using Diversol CX, you are getting effective bacterial destruction and your stainless steel equipment is safeguarded against corrosion.

Rust and corrosion pits that harbor bacteria can endanger food quality and cause premature replacement of expensive equipment. Find out the facts about non-corrosive Diversol CX. Have the same test you see above, performed in your office. Or, ask one of your men to take a look at it the next time a Diversey representative calls.

Send today for your copy of Technical Bulletin No. 203 on the easy NON-CORROSIVE SANITIZING OF STAINLESS STEEL. This 16-page, easy-to-read brochure shows, for the first time, how to avoid the danger of using wrong bactericides and how they corrode stainless steel. *Write to The Diversey Corporation, 1820 Roscoe Street, Chicago 13, Illinois.*



DIVERSEY DIVERSOL CX

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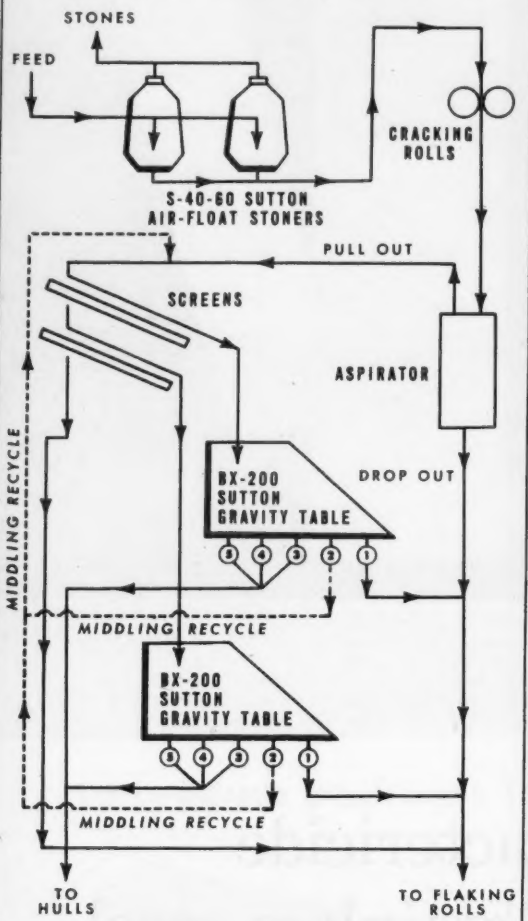
For Higher Protein Soy Bean Meal



TYPICAL INSTALLATION

Illustrated above is a factual application of Sutton equipment in modern soy bean processing. Performance data are available upon request.

Write Dept. FP, Sutton, Steele & Steele, Inc., 1031 South Haskell, Dallas 23, Texas.

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SEPARATIONS

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new literature

External leakage eliminated by sealless pump design

Sealless plastic and stainless steel pumps, having no stuffing boxes, glands, or shaft seals through which leakage or contamination can occur, are described in an 8-page catalog. Features set forth include description of how pumps work, performance data with pump characteristic curves, and charts with sizes, capacities, operating pressure ranges, etc.

Catalog 10.0 on sealless pumps is available from Vanton Pump and Equipment Corp., 201 Sweetland Ave., Hillside, N. J.

For your copy simply circle 5574 on Reader Service Slip.

Describes mold inhibitor

Odorless, tasteless, and colorless mold, bacterial, and enzyme inhibitor is described in 1-pg brochure. Since its introduction, this ingredient has been successfully protecting fruit and fruit-cream pie fillings and toppings, fruit cakes, and cheese cakes.

"Danger. — Shield Your Product with Perdex" was issued by Sterol Derivatives Inc., 3626 Medford St., Los Angeles 63, Calif.

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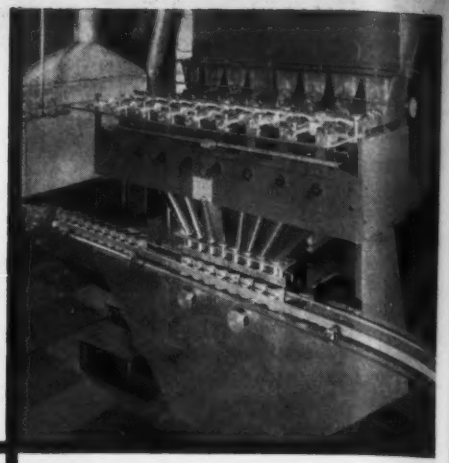
P M V · 8



Here's the filler for you! Accurately fills 100-3½ oz. cans every minute. — in this case — it's shown operating on the Funsten pecan line. The PMV-8 can do wonders in *your* plant, too.

Write for Catalog 55 on the PMV-8 and other volumetric, augur and gross or net weighing machines today.

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Comes in colors to blend with your wrappers. Here's a pressure-sensitive tape that can take it! Use Shuford's SHURTAPE RP-48 for meat and produce packaging and for frozen foods. It's strong, seals tight . . . is easy and economical to use!

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Designed to be sanitary, present an attractive appearance and wear indefinitely . . . ATLAS FLOORS resist the effects of food acids, harsh cleaning agents and all other corrosives found in food processing plants.

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Direct Drive
150 to 11,000 CFM.
S.P. to 4".

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65,000 CFM.
S.P. to 4".

- A patented scroll design assures positive air removal. Gallaher Air-Vans are designed to handle up to 65,000 CFM at static pressures to 4".
- The motor is out of the air stream.
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- Other Air-Van features include quiet operation, low silhouette, weatherproof design, availability in special metals and finishes and certified ratings based on actual physical tests.

Patents 2188741 2526290
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(*Continued from page* 19)

Shrimp: Time has been extended to Oct. 16 for comment on proposals to issue grade standards for the frozen raw breaded product.

Walnuts: Revised standards, effective Aug. 18, for the unshelled product eliminate the word "English" from the title. Grades remain the same as previously, and former size classifications are retained with slight changes. Three new size classes have been added to conform to industry practice — Mammoth, Jumbo, and Standard.

Figs: Revised standards for canned Kadota figs, effective August 16, adopt the latest FDA standards of identity for canned figs; slightly change recommended drained weights; provide for dietetic packs, and describe in greater detail quality requirements of each grade classification; and limit the top two grades to figs of whole style.

Sweet Cherries: Proposed revision of standards for grades of the frozen product provides for two styles, designated as "Pitted" and "Unpitted", eliminates the style previously designated as "Unpitted and Unstemmed". Provision is also made for a wider color range in the respective grade classifications. Defects would be more clearly defined, and tolerances provided on a count basis. Grades in the proposed revision are the same as in the current standards. Views and comments are to be submitted up to 90 days following publication of the proposed revisions in the Federal Register of Aug. 9, 1957.

Raisins: Proposed amendment of grade standards for the processed product would lower the tolerance for definitely dark berries from one to one-half percent in the definition of well-bleached (or extra fancy) color" in Sulfur Bleached and Golden Seedless Thompson raisins. Another proposal would change wordage "poorly developed, blowovers", to "undeveloped, worthless", retaining the same allowances for these defects. Definition and methods for ascertaining "moldy" raisins would be eliminated.

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and
CARRAGEENATES

"The ingredients you use **BY THE PINCH** to make better products **BY THE POUND"**

Marine plant extracts are no exception to the rule that the performance of a food ingredient is largely governed by its purity.

Thus, the degree of purity we have been able to impart to our super-refined alginates and carrageenates has made them dependable ingredients in a large and growing number of food products.

They are the logical choice of any food processor interested in viscosity, suspension, stabilization, or gelation. They perform these functions superbly and (as a result of their purity) with outstanding economy. For instance

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Important: their use has also led to the development of a number of new and improved forms of food products with remarkable sales records.

Write. Our technical department will be glad to answer your questions. Just tell us what you feel free to divulge about your product, your method of processing, and your problem.

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OCTOBER 1957

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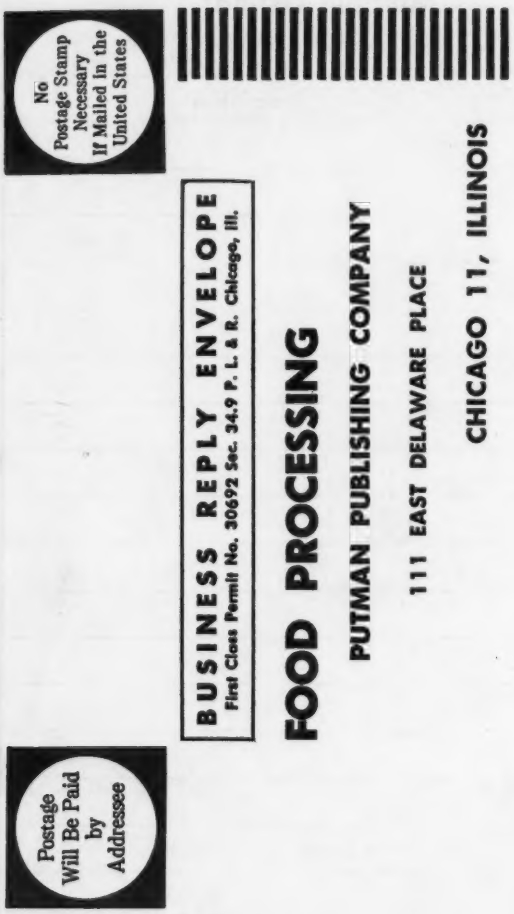
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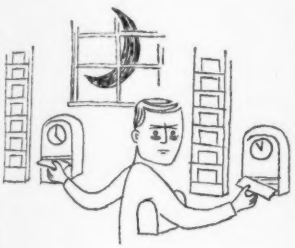
that's interesting

Moonlighting

Moonlighting, or holding down two jobs, apparently is not so onerous, with a 35-hour week. There are several mil-



lion moonlighters, both men and women, in the US today. The National Conference Board questioned 25 representative firms about the situation. Fifteen described its effects as not serious, five said it was a "minor headache", while the remaining five felt it was a "fairly serious" problem. One company said that, to its knowledge, it had no moonlighters, while another said 50% of its skilled help had extra employment.

Use "plastic" flowers to study bees

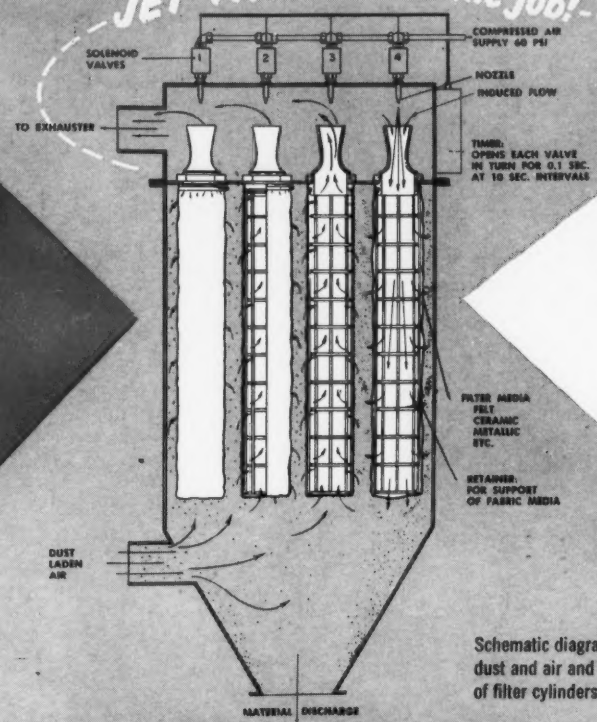
Plastic flowers (actually blocks of lucite) placed in dishes of syrup help USDA specialists study how bees make honey. Scene of the test is the Arizona desert, so that the number of flowers can be controlled. Bees reach the syrup through holes in the lucite blocks. Every time a bee takes a drink, an automatic graph records the amount of liquid consumed. This new technique of bee study is regarded as a distinct advance over earlier methods.

The soft touch

Americans consumed an estimated total of 31 billion bottles of soft drinks last year, or an average of 174 bottles per person.

JET-ACTION does the job!

No Internal Moving Parts . . .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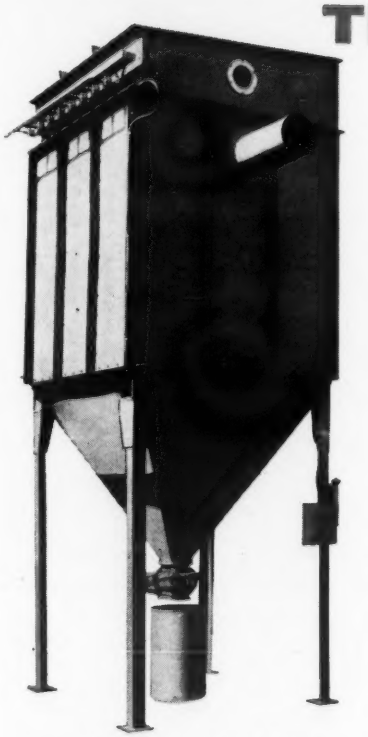
Schematic diagram showing flow of dust and air and arrangement of filter cylinders.

Continuous, Automatic Cleaning!

The MIKRO-PULSAIRE* COLLECTOR



Model 48-6 MIKRO-PULSAIRE Collector—340 sq. ft. of filter area—capacities 2000-5000 cfm. A complete line of units for all collection jobs.

There are *no internal moving parts* in this radically new *jet-action* MIKRO-PULSAIRE Collector! Cleaning mechanisms with their gears, cams, chains and hoses have been entirely eliminated . . . maintenance costs are drastically reduced . . . process interruptions are avoided! This completely simplified unit is the first collector to offer *continuous automatic cleaning* with no moving parts — *true economy in operation,* at highest filtering efficiency . . . 99.9% *plus!* You'll find full details, performance data, etc., in MIKRO-PULSAIRE Bulletin 52A. It's yours for the asking.

We'll be glad to have the Mikro Man call to show you and your plant engineers the tremendous advantages of MIKRO-PULSAIRE.

YOU GET ALL THESE FEATURES WITH THE NEW MIKRO-PULSAIRE!

- No internal moving parts
- Continuous, automatic cleaning
- Ease and simplicity of maintenance
- No shaking or frictional action on filter
- Low power requirements
- Efficiency—99.9%+
- Operating temperature limited by available filter fabrics only
- No primary mechanical collector required
- Inherently suitable for special conditions
- High filter ratio

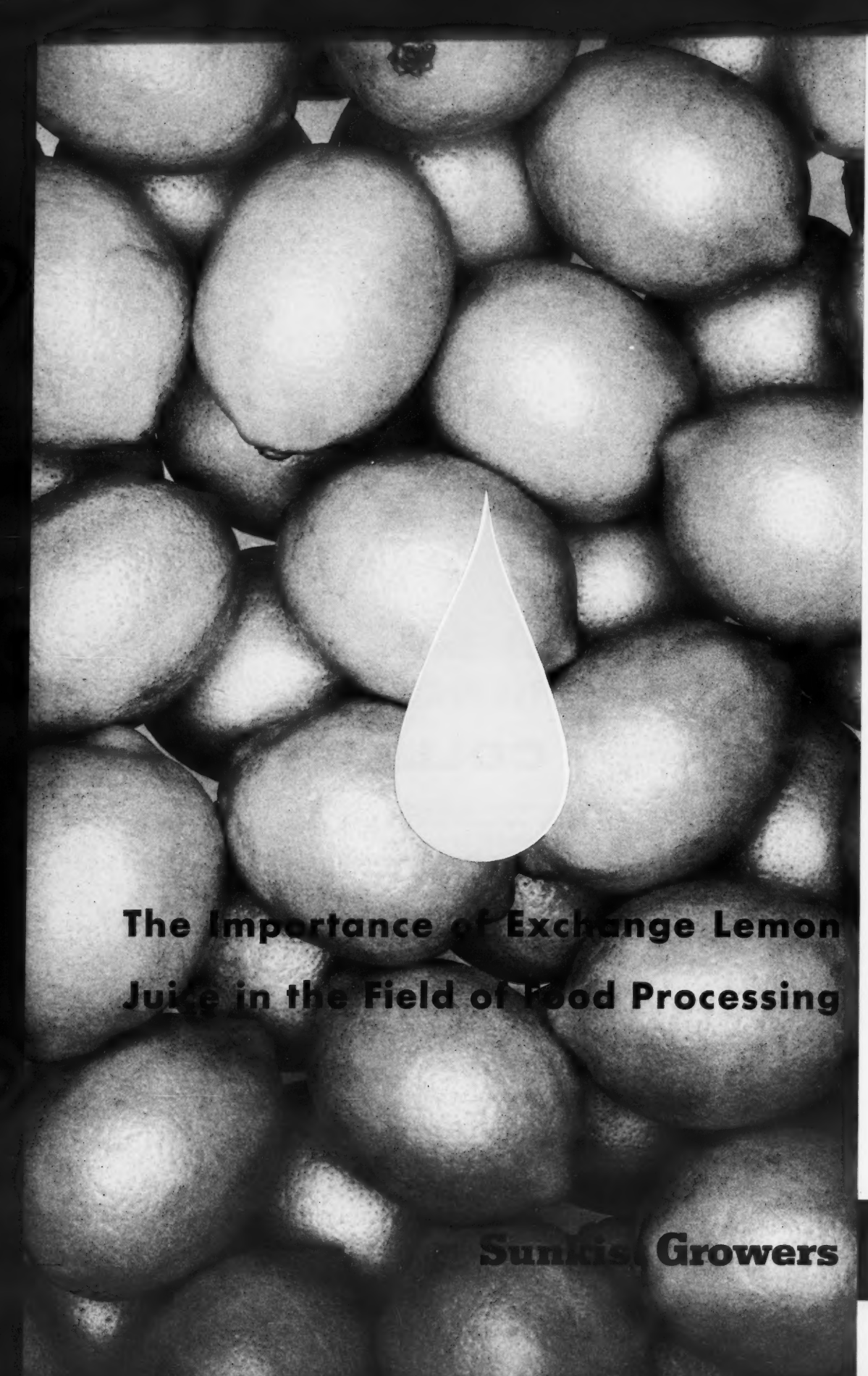
* patents applied for

Mikro-D

PULVERIZING MACHINERY DIVISION
METALS DISINTEGRATING COMPANY, INC.
63 Chatham Rd. Summit, New Jersey

MANUFACTURERS OF PULVERIZING, AIR CONVEYING AND DUST COLLECTION EQUIPMENT

5584 on Reader Service Slip



The Importance of Exchange Lemon Juice in the Field of Food Processing

Concentrated lemon juice plays a matchless role in the production of quality food products. Look at these established and indicated uses of lemon juice...

In baby foods to adjust acidity and improve quality.

In canned figs to increase acidity, reduce autoclave temperature and to improve flavor and texture.

In prune juice to improve flavor and palatability.

In fruit nectars (pear, peach, apricot and pineapple) to improve flavor and palatability.

In low acid fruits to improve flavor and texture and shorten processing time.

In canned vegetables (artichokes, onions, mushrooms, etc.) to adjust acidity.

In mayonnaise and salad dressings to improve flavor and storage life and to permit taste acidity adjustments to any desired level.

In cocktail sauces to improve flavor.

In vegetable juice cocktails to improve flavor.

In low sodium diet products to use as a salt replacement.

In frozen fruits to prevent browning.

In pared or diced fruits and vegetables (for distribution to institutional outlets) to prevent browning.

In fruits and vegetables to prevent browning during the interval preceding heat processing.

In frozen sea foods (especially those high in oil) to preserve freshness.

In breaded shrimp to improve flavor and preserve freshness.

In canned sea foods to improve flavor (and in some cases the color).

In fruit pie fillings as an acidulant.

In pure preserves and jellies as an acidulant.

In jellied salads and aspics as an acidulant.

In fruit drinks and fruit flavored beverages as an acidulant.

In ascorbic-treated foods to potentiate and to increase the ascorbic acid's effectiveness. Ingredients in lemon juice act synergistically with ascorbic acid. Also, lemon is an ideal protective carrier for ascorbic acid, protects it against deterioration and increases its penetration and absorption.

Exchange Concentrated Lemon Juice is an asset to your product...a distinction to its label. Let us prove this with an actual product test.

Sunkist Growers

Exchange

INDUSTRIAL SALES DIVISION
PRODUCTS DEPARTMENT
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